



Service Manual

Service Manual

GB210



Model : GB210



Table Of Contents

1. INTRODUCTION	5	4.15 Microphone Trouble	78
1.1 Purpose	5	4.16 RTC Trouble	80
1.2 Regulatory Information	5	4.17 Micro SD Trouble	82
1.3 Abbreviations	7	5. Download	84
2. PERFORMANCE	9	5.1 Download	84
2.1 H/W Features	9	6. BLOCK DIAGRAM	90
2.2 Technical Specification (GB210)	11	7. CIRCUIT DIAGRAM	91
3. TECHNICAL BRIEF	15	8. BGA Pin Map	97
3.1 SKY77518 TX–RX iPAC™ FEM for Dual-Band GSM/GPRS (SKY77518, U500)	15	9. PCB LAYOUT	101
3.2 Transceiver (AD6548, U501)	17	10. STAND ALONE TEST	103
3.3 26 MHz Clock (Crystal, X500)	19	10.1 Introduction	103
3.4 BT Module with integrated FM tuner(BC5-FM, U200) ...	20	10.2 Setting Method	103
3.5 Baseband Processor (AD6726, U103)	21	10.3 Means of Test	104
3.6 Display and Interface	27	11. AUTO CALIBRATION	106
3.7 Camera Interface(AIT716 , U400)	29	11.1 Overview	106
3.8 Keypad Switches and Scanning	32	11.2 Equipment List	106
3.9 Microphone	33	11.3 Test Jig Operation	107
3.10 Main Speaker	34	11.4 Procedure	108
3.11 Headset Interface	35	11.5 AGC	110
3.12 Key Back-light Illumination	36	11.6 APC	110
3.13 LCD Back-light Illumination	37	11.7 ADC	110
3.14 VIBRATOR	38	12. EXPLODED VIEW & REPLACEMENT PART LIST	111
3.15 Battery Charging	39	12.1 EXPLODED VIEW	111
4. TROUBLE SHOOTING	40	12.2 Replacement Parts	113
4.1 RF Component	40	12.3 Accessory	129
4.2 RX Trouble	41		
4.3 TX Trouble	46		
4.4 Bluetooth + FM Radio	52		
4.5 Power On Trouble	55		
4.6 Charging Trouble	57		
4.7 Vibrator Trouble	60		
4.8 LCD Trouble	62		
4.9 Camera Trouble	65		
4.10 Speaker Trouble	68		
4.11 SIM Card Interface Trouble	70		
4.12 Earphone Trouble	72		
4.13 KEY backlight Trouble	74		
4.14 Receiver Trouble	76		



1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it.

The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the this phone or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on this model must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

1. INTRODUCTION

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

Phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the sign. Following information is ESD handling:



- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current – Constant Voltage
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIO	General Purpose Interface Bus
GSM	Global System for Mobile Communications
IQUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode
OPLL	Offset Phase Locked Loop

1. INTRODUCTION

PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
PSRAM	Pseudo SRAM
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. PERFORMANCE

2.1 H/W Features

Item	Feature	Comment
Standard Battery	Li-ion, 3.7V 1100mAh	
Talk time	Up to 240min : GSM Tx Level 7	
Stand by time	Up to 350 hours (Paging Period: 5, RSSI: -85 dBm)	
Charging time	Approx. 3 hours	
RX Sensitivity	-102dBm	
TX output power	GSM900 : 32.5dBm(Level 5), DCS : 29.5dBm(Level 0)	
GPRS compatibility	Class 10	
SIM card type	3V	
Display	MAIN : TFT 128 × 160 pixel 262K Color	
Status Indicator	Hard icons. Key Pad 0 ~ 9, #, *, Up/Down/Left/Right/Ok Navigation Key Menu Key, Clear Key, Confirm Key, Send Key , PWR Key,	
ANT	Internal	
EAR Phone Jack	Yes (Stereo)	
PC Synchronization	Yes	
Speech coding	EFR/FR/HR	
Data	Yes	
Vibrator	Yes	
Loud Speaker	Yes	
Voice Recoding	Yes	
Microphone	Yes	

2. PERFORMANCE

Item	Feature	Comment
Speaker/Receiver	Receiver 11X 07, Speaker : 16*16	
Travel Adapter	Yes	
MIDI	32poly SW MIDI	
Camera	1.3M	

2.2 Technical Specification (GB210)

Item	Description	Specification																																																						
1	Frequency Band	<p>► GSM850 TX: 824 + 0.2 x (n-127) MHz RX: 869 + 0.2 x (n-127) MHz (n = 128 ~ 251)</p> <p>► GSM900 (EGSM) TX: 890 + (n-1024) × 0.2 MHz RX: 935 + (n-1024) × 0.2 MHz (n=975~1024) (PGSM) TX: 890 + (n-1024) × 0.2 MHz RX: 935 + (n-1024) × 0.2 MHz (n=1~124)</p> <p>► DCS1800 TX: 1710 + (n-512) × 0.2 MHz RX: 1805 + (n-512) × 0.2 MHz (n=512~885)</p> <p>► PCS1900 TX: 1810 + (n-512) × 0.2 MHz RX: 1905 + (n-512) × 0.2 MHz (n=512~885)</p>																																																						
2	Phase Error	RMS < 5 degrees Peak < 20 degrees																																																						
3	Frequency Error	< 0.1ppm																																																						
4	Power Level	GSM850/EGSM900																																																						
		<table><tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr><tr><td>5</td><td>33 dBm</td><td>±2dB</td><td>13</td><td>17 dBm</td><td>±3dB</td></tr><tr><td>6</td><td>31 dBm</td><td>±3dB</td><td>14</td><td>15 dBm</td><td>±3dB</td></tr><tr><td>7</td><td>29 dBm</td><td>±3dB</td><td>15</td><td>13 dBm</td><td>±3dB</td></tr><tr><td>8</td><td>27 dBm</td><td>±3dB</td><td>16</td><td>11 dBm</td><td>±5dB</td></tr><tr><td>9</td><td>25 dBm</td><td>±3dB</td><td>17</td><td>9 dBm</td><td>±5dB</td></tr><tr><td>10</td><td>23 dBm</td><td>±3dB</td><td>18</td><td>7 dBm</td><td>±5dB</td></tr><tr><td>11</td><td>21 dBm</td><td>±3dB</td><td>19</td><td>5 dBm</td><td>±5dB</td></tr><tr><td>12</td><td>19 dBm</td><td>±3dB</td><td></td><td></td><td></td></tr></table>	Level	Power	Toler.	Level	Power	Toler.	5	33 dBm	±2dB	13	17 dBm	±3dB	6	31 dBm	±3dB	14	15 dBm	±3dB	7	29 dBm	±3dB	15	13 dBm	±3dB	8	27 dBm	±3dB	16	11 dBm	±5dB	9	25 dBm	±3dB	17	9 dBm	±5dB	10	23 dBm	±3dB	18	7 dBm	±5dB	11	21 dBm	±3dB	19	5 dBm	±5dB	12	19 dBm	±3dB			
		Level	Power	Toler.	Level	Power	Toler.																																																	
		5	33 dBm	±2dB	13	17 dBm	±3dB																																																	
		6	31 dBm	±3dB	14	15 dBm	±3dB																																																	
		7	29 dBm	±3dB	15	13 dBm	±3dB																																																	
		8	27 dBm	±3dB	16	11 dBm	±5dB																																																	
		9	25 dBm	±3dB	17	9 dBm	±5dB																																																	
		10	23 dBm	±3dB	18	7 dBm	±5dB																																																	
		11	21 dBm	±3dB	19	5 dBm	±5dB																																																	
		12	19 dBm	±3dB																																																				
		DCS1800/PCS1900																																																						
		<table><tr><td>Level</td><td>Power</td><td>Toler.</td><td>Level</td><td>Power</td><td>Toler.</td></tr><tr><td>0</td><td>30 dBm</td><td>±2dB</td><td>8</td><td>14 dBm</td><td>±3dB</td></tr><tr><td>1</td><td>28 dBm</td><td>±3dB</td><td>9</td><td>12 dBm</td><td>±4dB</td></tr><tr><td>2</td><td>26 dBm</td><td>±3dB</td><td>10</td><td>10 dBm</td><td>±4dB</td></tr><tr><td>3</td><td>24 dBm</td><td>±3dB</td><td>11</td><td>8 dBm</td><td>±4dB</td></tr><tr><td>4</td><td>22 dBm</td><td>±3dB</td><td>12</td><td>6 dBm</td><td>±4dB</td></tr><tr><td>5</td><td>20 dBm</td><td>±3dB</td><td>13</td><td>4 dBm</td><td>±4dB</td></tr><tr><td>6</td><td>18 dBm</td><td>±3dB</td><td>14</td><td>2 dBm</td><td>±5dB</td></tr><tr><td>7</td><td>16 dBm</td><td>±3dB</td><td>15</td><td>0 dBm</td><td>±5dB</td></tr></table>	Level	Power	Toler.	Level	Power	Toler.	0	30 dBm	±2dB	8	14 dBm	±3dB	1	28 dBm	±3dB	9	12 dBm	±4dB	2	26 dBm	±3dB	10	10 dBm	±4dB	3	24 dBm	±3dB	11	8 dBm	±4dB	4	22 dBm	±3dB	12	6 dBm	±4dB	5	20 dBm	±3dB	13	4 dBm	±4dB	6	18 dBm	±3dB	14	2 dBm	±5dB	7	16 dBm	±3dB	15	0 dBm	±5dB
		Level	Power	Toler.	Level	Power	Toler.																																																	
		0	30 dBm	±2dB	8	14 dBm	±3dB																																																	
		1	28 dBm	±3dB	9	12 dBm	±4dB																																																	
		2	26 dBm	±3dB	10	10 dBm	±4dB																																																	
		3	24 dBm	±3dB	11	8 dBm	±4dB																																																	
		4	22 dBm	±3dB	12	6 dBm	±4dB																																																	
		5	20 dBm	±3dB	13	4 dBm	±4dB																																																	
6	18 dBm	±3dB	14	2 dBm	±5dB																																																			
7	16 dBm	±3dB	15	0 dBm	±5dB																																																			
5	EDGE Max. Power	Not support																																																						
6	EDGE Modulation Accuracy	Not support																																																						

2. PERFORMANCE

Item	Description	Specification	
7	Output RF Spectrum (Due to Modulation)	GSM850/EGSM900	
		Offset from Carrier (kHz).	Max. [dBc]
		100	0.5
		200	-30
		250	-33
		400	-60
		600 ~ 1,200	-60
		1,200 ~ 1,800	-60
		1,800 ~ 3,000	-63
		3,000 ~ 6,000	-65
		6,000	-71
		DCS1800/PCS1900	
		Offset from Carrier (kHz).	Max. [dBc]
		100	0.5
		200	-30
		250	-33
		400	-60
		600 ~ 1,200	-60
		1,200 ~ 1,800	-60
		1,800 ~ 3,000	-65
		3,000 ~ 6,000	-65
		6,000	-73
8	Output RF Spectrum (Due to Switching)	GSM850/EGSM900	
		Offset from Carrier (kHz)	Max. [dBm]
		400	-19
		600	-21
		1,200	-21
		1,800	-24
		DCS1800/PCS1900	
		Offset from Carrier (kHz)	Max. [dBm]
		400	-22
		600	-24
		1,200	-24
		1,800	-27
9	Spurious Emissions	Conduction, Emission Status	
		Radiation, Emission Status	

2. PERFORMANCE

Item	Description	Specification		
10	Bit Error Ratio	GSM850/EGSM900 BER (Class II) < 2.439% @-102dBm		
		DCS1800/PCS1900 BER (Class II) < 2.439% @-102dBm		
11	Rx Level Report accuracy	2 ± 3 dB		
12	SLR	8 ± 3 dB		
13	Sending Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	-
14	RLR(Normal volume)	-4± 3 dB		
15	Receiving Response (Type 3.2)	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-6	/
		200	2	/
		300	2	-9
		1,000	2	-7
		3,400	2	-12
		4,000	2	-
16	STMR	> 17 dB		
17	Echo Loss	> 40 dB		
18	Idle Noise Sending	< -64 dBm0p		
19	Idle Noise Receiving	< -36 dBm0p		
20	Power consumption	Max. power < 300mA @GSM850, PL=5 < 230mA @PCS, PL=0		
		Standby < 5.5mA @PP2 < 3.3mA @PP5 < 2.7mA @PP9		
		Bluetooth < 5.0mA @ Bluetooth on (Standby) < 300mA @ Bluetooth connected (Call)		
		FM radio < 40mA @ FM Radio Operation (AVG)		
		Backup Battery (Without Main Battery) Normal Power Off : < 5uA Emergency Power Off : < 15uA		

2. PERFORMANCE

Item	Description	Specification	
21	Talk Time	4 hr., Min.@GSM850/ESGSM900, PL=5 6 hr., Min.@GSM850/EGSM900, PL=12 4.5 hr., Min.@DCS/PCS, PL=0 7 hr., Min.@DCS/PCS, PL=10	
22	Standby Time	400 hr., Min.@PP9 350 hr., Min.@PP5 - Full charge, no receive/send and keep GSM in idle mode. Broadcast set off. Signal strength display set at 3 levelabove. Backlight of phone set off.	
23	Ringer Volume(TBD)	At least 55 dB under below conditions: 1. Ringer set as ringer. 2. Test distance set as 1 m.	
24	Charge Current	Fast Charge : < 550 mA Slow Charge: < 110 mA	
25	Charging Time	Under 3 hr.	
26	Antenna Display	Antenna Bar Number	Power
		5	-92 dBm ~
		4	-100 dBm ~ -93 dBm
		3	skip
		2	-103 dBm ~ -101 dBm
		1	-105 dBm ~ -104 dBm
		0	~ -105 dBm
27	Battery Indicator	Battery Bar Number	Voltage
		1 → 0	3.42V ± 0.05V
		2 → 1	3.55V ± 0.05 V
		3 → 2	3.7V ± 0.05 V
		3	4.2V
28	Low Voltage Warning(TBD)	3.42 ± 0.05 V (Call)	
		3.42 ± 0.05 V (Standby)	
29	Forced shut down Voltage	3.33 ± 0.05V	
30	Battery Type	Main Battery : Li-ion, 1100mAh, Inner Pack Back-up Battery : Lithium, 1mAh	
31	Travel Charger	Input: 100 ~ 240 V, 50/60Hz Output: 5.1V, 700mA	

3. TECHNICAL BRIEF

3.1 SKY77518 TX-RX iPAC™ FEM for Dual-Band GSM/GPRS (SKY77518, U500)

The SKY77518 is a transmit and receive front-end module (FEM) with Integrated Power Amplifier Control (iPAC™) for dual-band cellular handsets comprising GSM900 and DCS1800 operation. Designed in a low profile, compact form factor, the SKY77518 offers a complete Transmit VCO-to-Antenna and Antenna-to-Receive SAW filter solution. The FEM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation. The module consists of a GSM900 PA block and a DCS1800 PA block, impedance-matching circuitry for 50 Ω input and output impedances, TX harmonics filtering, high linearity and low insertion loss PHEMT RF switches, diplexer and a Power Amplifier Control (PAC) block with internal current sense resistor. A custom BiCMOS integrated circuit provides the internal PAC function and decoder circuitry to control the RF switches. The two Heterojunction Bipolar Transistor (HBT) PA blocks are fabricated onto a single Gallium Arsenide (GaAs) die. One PA block supports the GSM900 band and the other PA block supports the DCS1800 band. Both PA blocks share common power supply pads to distribute current. The output of each PA block and the outputs to the two receive pads are connected to the antenna pad through PHEMT RF switches and a diplexer. The GaAs die, PHEMT die, Silicon (Si) die and passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold. Band selection and control of transmit and receive modes are performed using two external control pads. Refer to the functional block diagram in Figure 1 below. The band select pad (BS) selects between GSM and DCS modes of operation. The transmit enable (TX_EN) pad controls receive or transmit mode of the respective RF switch (TX = logic 1). Proper timing between transmit enable (TX_EN) and Analog Power Control (VRAMP) allows for high isolation between the antenna and TX-VCO while the VCO is being tuned prior to the transmit burst. The SKY77518 is compatible with logic levels from 1.2 V to VCC for BS and TX_EN pads, depending on the level applied to the VLOGIC pad. This feature provides additional flexibility for the designer in the selection of FEM interface control logic.

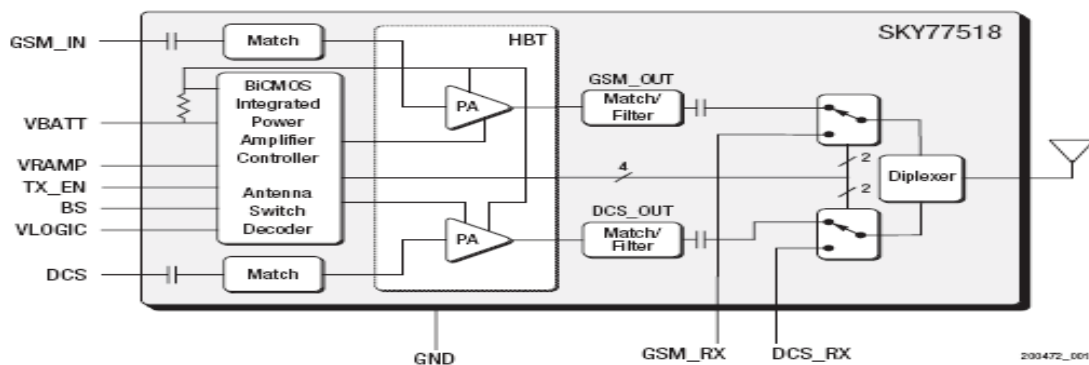


Figure 1. Functional Block Diagram

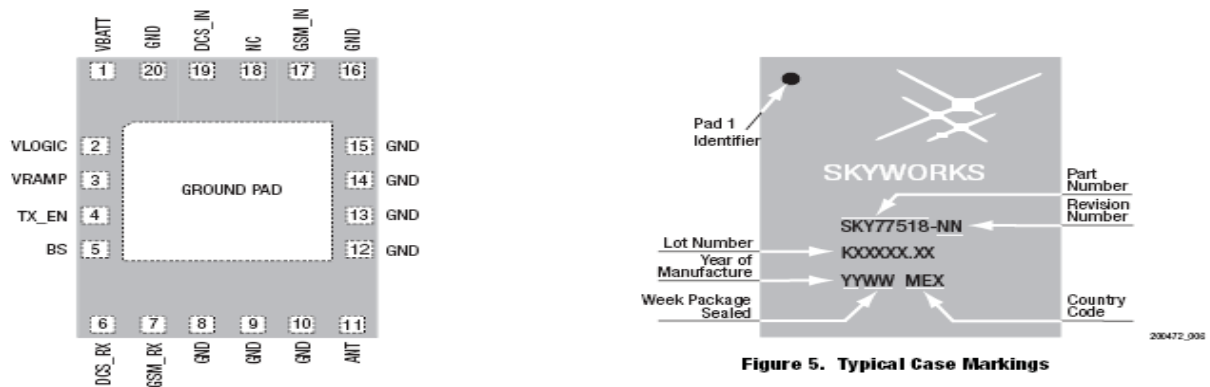


Figure 5. Typical Case Markings

3. TECHNICAL BRIEF

Table 5. SKY77518 Pad Names and Signal Descriptions

Pad	Name	Description
1	VBATT	Battery input voltage
2	VLOGIC	Control logic level selection/Standby control
3	VRAMP	Analog power control voltage input
4	TX_EN	TX / RX select (mode control)
5	BS	Band Select (mode control)
6	DCS_RX	DCS Receive RF Output (1805-1880 MHz)
7	GSM_RX	GSM Receive RF Output (920-960 MHz)
8-10	GND	RF and DC Ground
11	ANT	RF_IN / RF_OUT to Antenna
12-16	GND	RF and DC Ground
17	GSM_IN	RF input 880-915 MHz
18	NC	No Connect
19	DSC_IN	RF input 1710-1785 MHz
20	GND	RF and DC Ground
GND PADS	GROUND GRID	Ground Pads, module underside

Table 5 Pad description

Table 3. SKY77518 Mode Control Logic

Mode	VLOGIC	Input Control Bits	
		TX_En	BS
STANDBY	0	X ¹	X ¹
GSM_Rx	1	0	0
DCS_Rx	1	0	1
GSM_TX	1	1	0
DCS_TX	1	1	1

¹ X = don't care

Table 3 Mode Control logic

3.2 Transceiver (AD6548, U501)

The AD6548 provides a highly integrated direct conversion radio solution that combines, on a single chip, all radio and power management functions necessary to build the most compact GSM radio solution possible. The only external components required for a complete radio design are the Rx SAWs, PA, Switchplexer and a few passives enabling an extremely small cost effective GSM Radio solution. The AD6548 uses the industry proven direct conversion receiver architecture of the Othello™ family. For Quad band applications the front end features four fully integrated programmable gain differential LNAs. The RF is then down converted by quadrature mixers and then fed to the baseband programmable-gain amplifiers and active filters for channel selection. The Receiver output pins can be directly connected to the baseband analog processor. The Receive path features automatic calibration and tracking to remove DC offsets. The transmitter features a translation-loop architecture for directly modulating baseband signals onto the integrated TX VCO. The translation-loop modulator and TX VCO are extremely low noise removing the need for external SAW filters prior to the PA. The AD6548 uses a single integrated LO VCO for both the receive and the transmit circuits. The synthesizer lock times are optimized for GPRS applications up to and including class 12.

AD6548 incorporates a complete reference crystal calibration system. This allows the external VCTCXO to be replaced with a low cost crystal. No other external components are required. The AD6548 uses the traditional VCTCXO reference source. The AD6548 also contains on-chip low dropout voltage regulators (LDOs) to deliver regulated supply voltages to the functions on chip, with a battery input voltage of between 2.9V and 5.5V. Comprehensive power down options are included to minimize power consumption in normal use. A standard 3 wire serial interface is used to program the IC. The interface features low-voltage digital interface buffers compatible with logic levels from 1.6V to 2.9V.

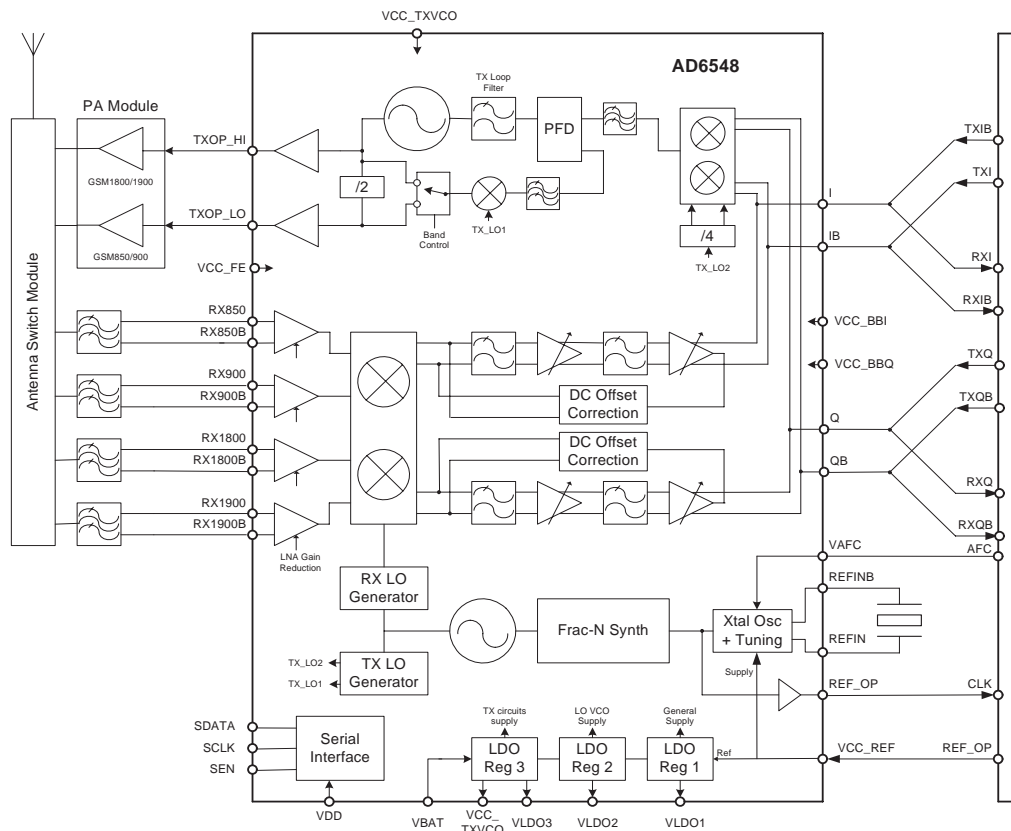
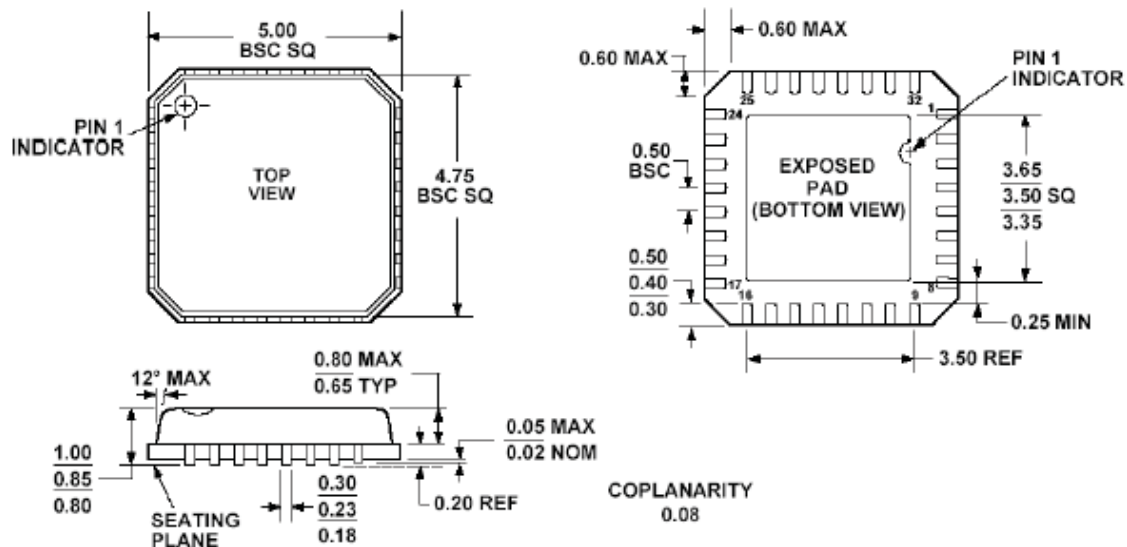


Figure 3.3 AD6548 Block Diagram

3. TECHNICAL BRIEF



COMPLIANT TO JEDEC STANDARDS MO-220-VHHD-2

AD6548/9 Pin Descriptions

No	Name	Description	No	Name	Description
1	VCC_FE	Front end supply (IP)	17	VCC_REF	Reference Oscillator Supply (IP)
2	I	I baseband input/output	18	VAFC/ N/C	AD6548 Crystal Freq control (IP) AD6549: Spare Pin
3	IB	I baseband input/output	19	REFIN	Crystal Connection
4	VCC_BBI	Baseband I, TX path supply (IP)	20	REFINB	Crystal Connection
5	SDATA	Serial port data	21	REF_OP	Reference Frequency Output
6	SCLK	Serial port clock	22	QB	Q baseband input/output
7	SEN	Serial port enable	23	Q	Q baseband input/output
8	N/C	Not connected	24	VCC_BBQ	Baseband Q supply (IP)
9	VLDO3	TX LDO Output (1)	25	RX1900B	PCS 1900 LNA input
10	TXOP_LO	Transmit O/P (850/900MHz)	26	RX1900	PCS 1900 LNA input
11	TXOP_HI	Transmit O/P (1800/1900MHz)	27	RX1800B	DCS 1800 LNA input
12	VCC_TXVCO	TX VCO supply (1)	28	RX1800	DCS 1800 LNA input
13	VDD	Serial interface supply	29	RX900B	E-GSM LNA input
14	VBAT	Battery I/P for LDO reg's	30	RX900	E-GSM LNA input
15	VLDO1	LDO regulator Output (2)	31	RX850B	GSM 850 LNA input
16	VLDO2	LO VCO Supply (3)	32	RX850	GSM 850 LNA input

Notes:

1. Supply regulated by internal LDO3 and should not be connected to any other supply
2. Internally connected as Synth supply (Counters + SDM + Charge pump)
3. Supply regulated by internal LDO2 and should not be connected to any other supply

3.3 26 MHz Clock (Crystal, X500)

The 26 MHz clock (X401) consists of a XO (Crystal Oscillator) which oscillates at a frequency of 26 MHz. The AD6548 requires only an external low cost crystal as the frequency reference. The circuitry to oscillate the crystal and tune its frequency is fully integrated. The Oscillator is a balanced implementation requiring the crystal to be connected across 2 pins. There is a programmable capacitor array included for coarse tuning of fixed offsets (e.g. crystal manufacturing tolerance), and an integrated varactor for dynamic control. The oscillator is designed for use with a 26MHz crystal. Dedicated control software ensures excellent frequency stability under all circumstances.

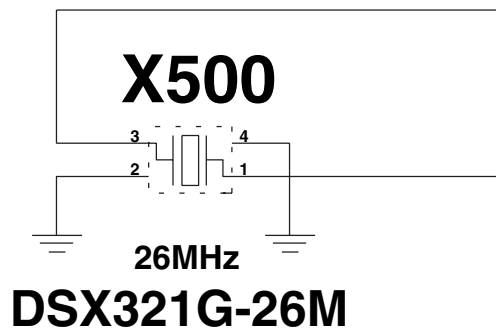


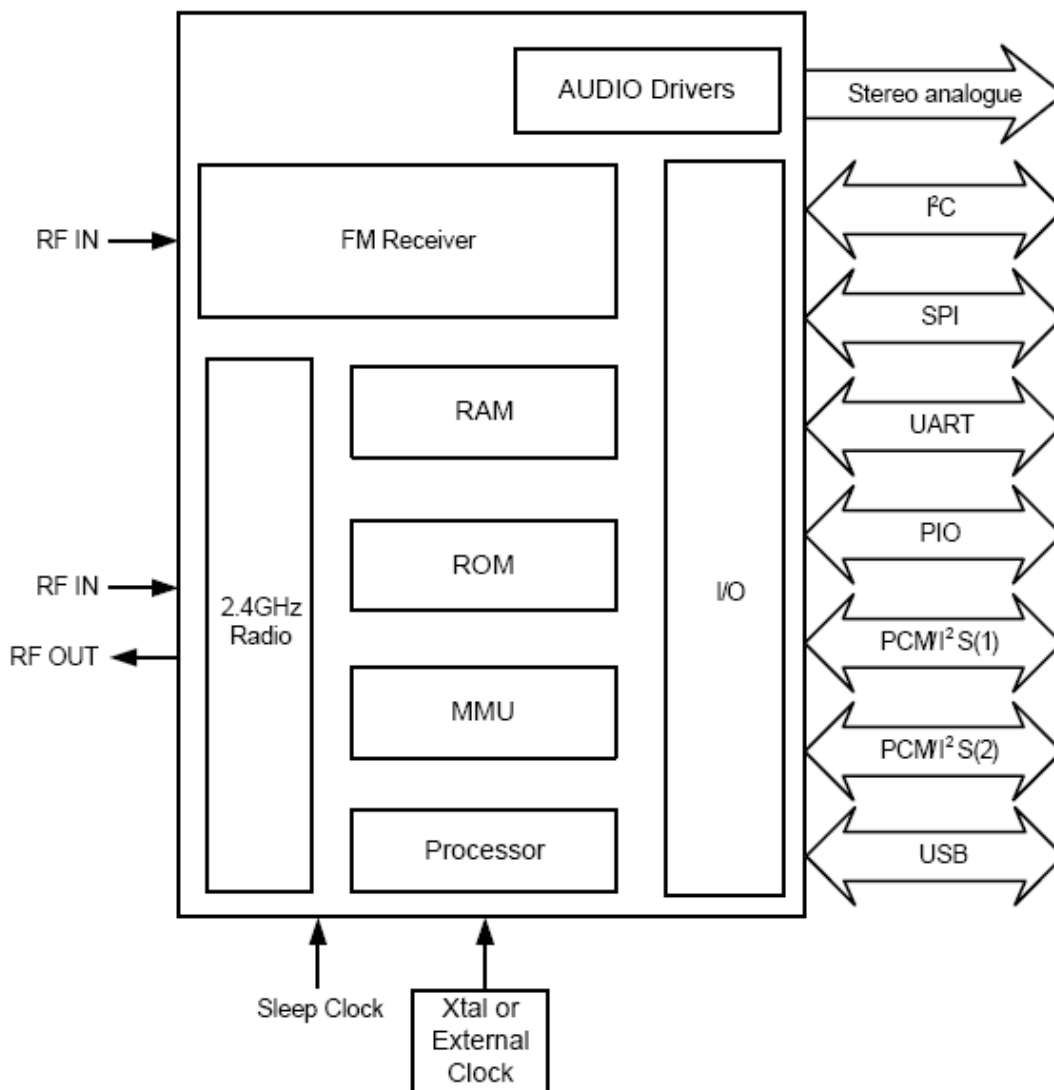
Figure 3.4 CRYSTAL CIRCUIT DIAGRAM

3. TECHNICAL BRIEF

3.4 BT Module with integrated FM tuner(BC5-FM, U200)

The **BlueCore5-FM BGA** is a single-chip radio and baseband IC for Bluetooth 2.4GHz systems including enhanced data rates (EDR) to 3Mbps/s. It includes an integrated FM receiver with stereo audio output stage and an RDS demodulator.

With the on-chip CSR Bluetooth software stack, it provides a fully compliant Bluetooth system to v2.1 + EDR of the specification for data and voice communications.



3.5 Baseband Processor (AD6726 , U103)

- AD6726 is an ADI designed processor
- AD6726 consists of
 1. Control Processor Subsystem including:
 - 32-bit MCU ARM7TDMI® Control Processor
 - 78 MHz operation at 1.8V
 - 2Mb of on-chip System SRAM Memory
 2. DSP Subsystem including:
 - 16-bit Fixed Point DSP Processor
 - 91 MIPS[1] at 1.8V
 - Data and Program SRAM
 - Program Instruction Cache
 - Full Rate, Enhanced Full Rate and Half Rate
 - Speech Encoding/Decoding
 - Capable of Supporting AMR & PDC Speech Algorithms
 3. Peripheral Functions
 - Parallel and Serial Display Interface
 - USB 2.0 Full Speed device Interface
 - Keypad Interface
 - Support for Burst and Page Mode Flash
 - 1.8V and 3.0V, 64 kbps SIM Interface
 - Universal System Connector Interface
 - Data Services Interface
 - SD/Multimedia Card Interface
 4. Other
 - Supports 13 MHz and 26 MHz Input Clocks
 - 1.8V Typical Core Operating Voltages
 - 361-Ball Package (13x13mm) , 0.65mm Ball pitch
 5. The AD6726 baseband transmit section supports the following mobile station GMSK modulation power classes:
 - GSM 900/850 power classes 4 and 5,
 - DCS 1800 power classes 1 and 2, and
 - PCS 1900 power classes 1 and 2

3. TECHNICAL BRIEF

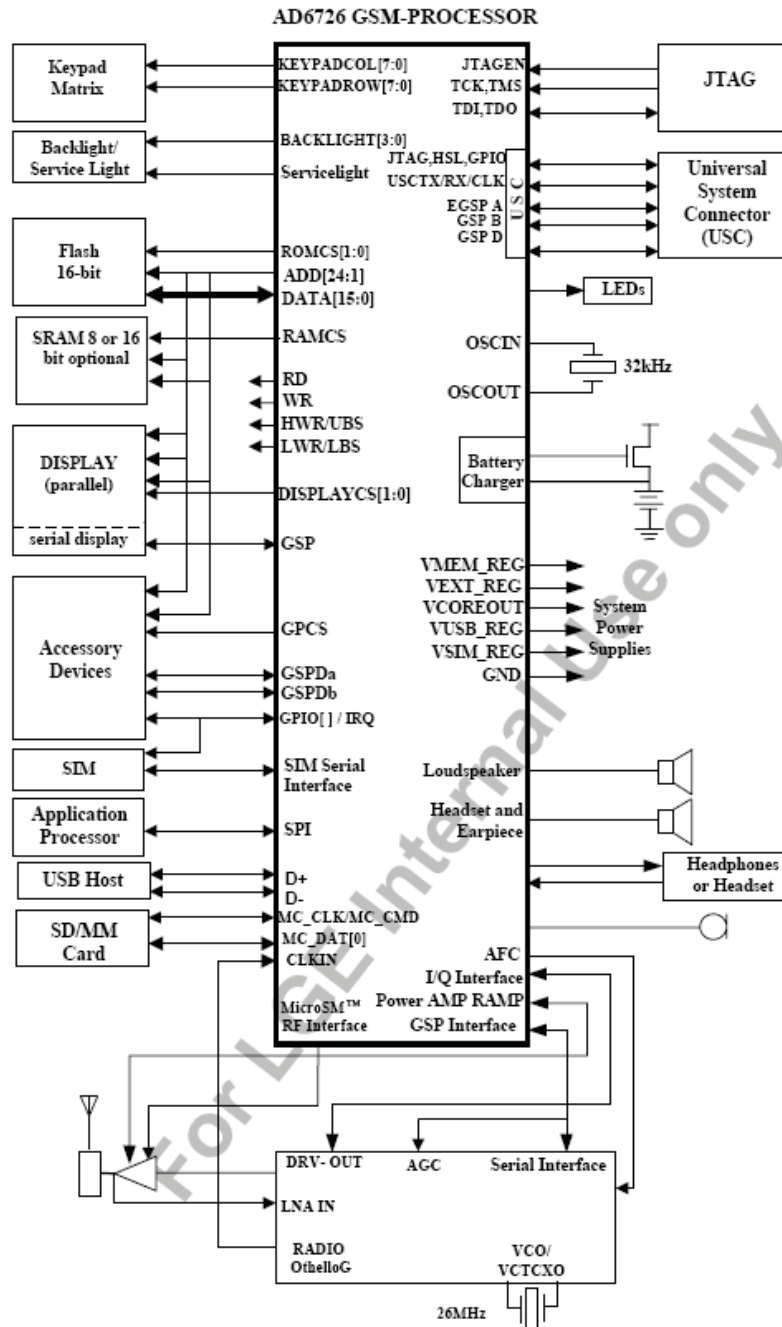


Figure 3.5 SYSTEM INTERCONNECTION OF AD6726 EXTERNAL INTERFACE

3.5.1 Interconnection with external devices

A. RTC block interface

Countered by external X-TAL
32.768kHz oscillator supplies on-chip Real Time Clock circuitry

B. LCD module interface

The LCD module is controlled via mobile media processor AIT716
If AIT716 is in the state of by-pass mode, the LCD control signals from AD6726 are by-passed through AIT716.
In operating mode, the AIT716 controls the LCD module through nLCD_CS, nLCD_RS, nLCD_WR, L_DATA08~L_DATA15.

Signals	Description
nLCD_CS	MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
LCD_ID	Identify LCD module maker
LCD_RESET	This pin resets LCD module. This signal comes from AD6726 directly.
nLCD_WR	Enable writing to LCD Driver.
nLCD_RS	This pin determines whether the data to LCD module are LCD command or data.
2V8_MM	2.8V is supplied to LCD driver IC.

Table 3.5.B LCD CONTRON SIGNALS DISCRIPTION

3. TECHNICAL BRIEF

The backlight of LCD module is controlled by AD6726 via AAT2845.
The control signals related to Backlight LED are given as follows.

Signals	Description
MLED	Current source for backlight LED
LCD_DIM_CTRL	Control LCD backlight level in 16 steps
MLED[1:2]	This pins are returned-paths for backlight LED current source (MLED)

Table 3.5.B2 DESCRIPTION OF LCD BACKLIGHT LED CONTROL

C. RF interface

The AD6726 control RF parts through PA_BAND, ANT_SW, CLKON , PA_EN, S_EN, S_DATA, S_CLK

Signal	Description
PA_BAND (GPIO 0)	PAM Band Select
ANT_SW (GPO 9)	Antenna switch Band Select
PA_EN (GPO 16)	PAM Enable/Disable
S_EN (GPO 19)	PLL Enable/Disable
S_DATA (GPO 20)	Serial Data to PLL
S_CLK (GPO 21)	Clock to PLL

Table 3.5.C RF CONTROL SIGNALS DESCRIPTION

The AD6726 provides SIM Interface Module. The AD6726 checks status periodically during established call mode whether SIM card is inserted or not, but it doesn't check during deep Sleep mode. In order to communicate with SIM card, 3 signals SIM_DATA, SIM_CLK, SIM_RST(GPIO_23) are required. The descriptions about the signals are given by bellow Table 3-5 in detail.

Table 3.5.D SIM CONTROL SIGNALS DESCRIPTION

SIM_CONNECTOR

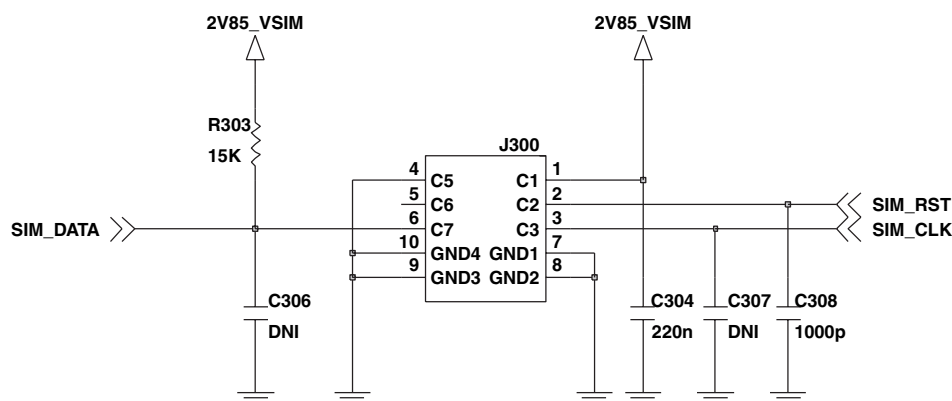


Figure 3.5.D2 SIM Interface of AD6726

3. TECHNICAL BRIEF

E. LDO Block

There are 9 LDOs in the AD6726.

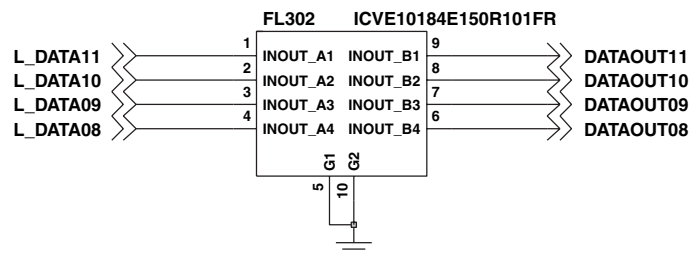
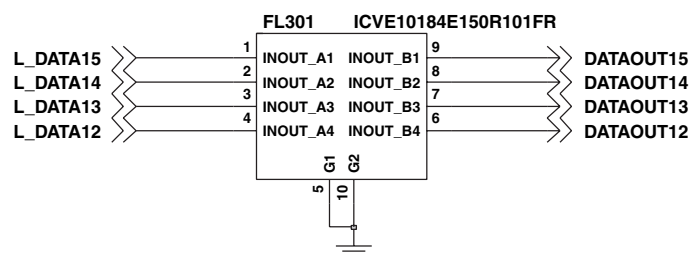
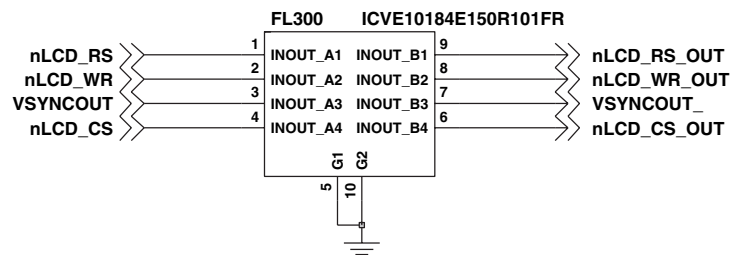
- 1V8_VCORE : supplies Digital baseband Processor core and AD6726 digital core(1.8V, 80mA)
- 2V8_VMEM : supplies external memory and the interface to the external memory on the digital baseband processor (2.8V, 150mA)
- 2V8_VEXT : supplies Radio digital interface and high voltage interface (2.8V, 200mA)
- 2V85_VSIM : supplies the SIM interface circuitry on the digital processor and SIM card (2.85V, 1.8V, 20mA)
- 1V8_VRTC : supplies the Real-Time Clock module (1.8 V, 20 μ A)
- 2V5_VMIC : supplies the microphone interface circuitry (2.5 V, 2 mA)
- 2V75_VVCXO: supplies the voltage controlled crystal oscillator (2.75 V, 10 mA)
- VUSB : supplies USB interface circuitry(3.2V, 20mA)
- 1V8_VGP : supplies VDD_IO1 & VDD_IO4 of MMP(1.8V, 40mA)

3.6 Display and Interface

Properties	Spec.	Unit
Active Screen Size	28.032mm(W) x 35.04mm(H)	mm
Color Depth	262K TFT	colors
Resolution	128 X 160	Pixels

Controlled by nLCD_CS, LCD_RESET, nLCD_RS, nLCD_WR, L_DATA08~L_DATA15

- nLCD_CS : MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
- LCD_RESET : This pin resets LCD module. This signal comes from AD6726 directly.
- nLCD_RS: This pin determines whether the data to LCD module are display data or control data.
- nLCD_WR : Write control Signal
- L_DATA08~L_DATA15 : Parallel data lines.
- LCD_ID : reserved



3. TECHNICAL BRIEF

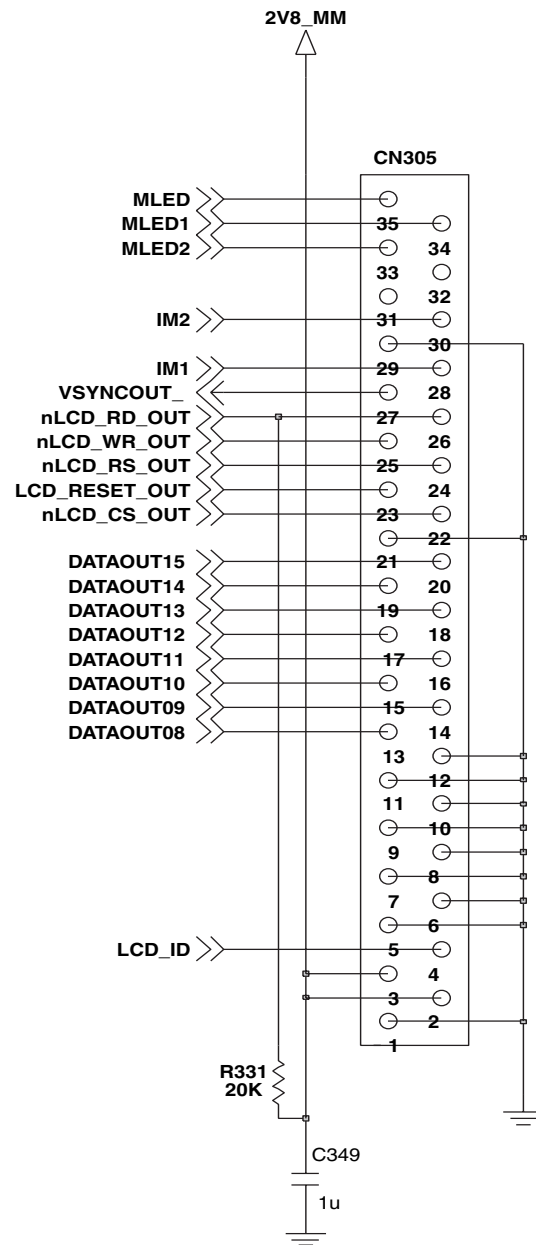


Figure 3.6 LCD INTERFACE CIRCUIT

3.7 Camera Interface(AIT716 , U400)

This model has a built-in 1.3M SXGA (1280 x 1024) camera module. And the camera produces JPG pictures. Camera module is controlled by AIT716. Interface is done by I2C and YCbCr format. I2C is a control signal and YCbCr is real data interface signal.

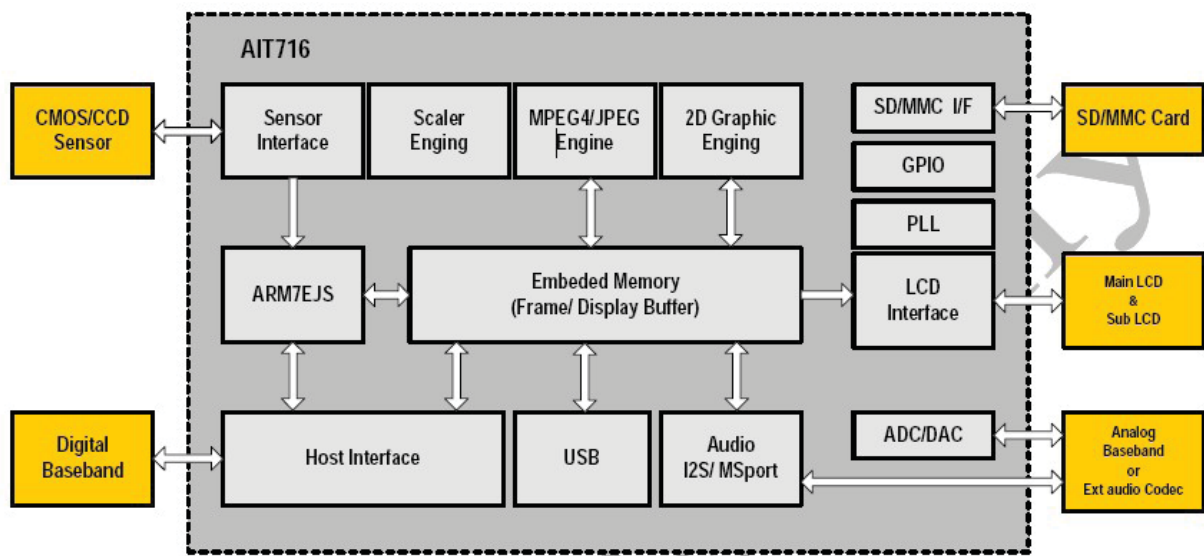


Figure 3.7.1 AIT716 BLOCK DIAGRAM

3. TECHNICAL BRIEF

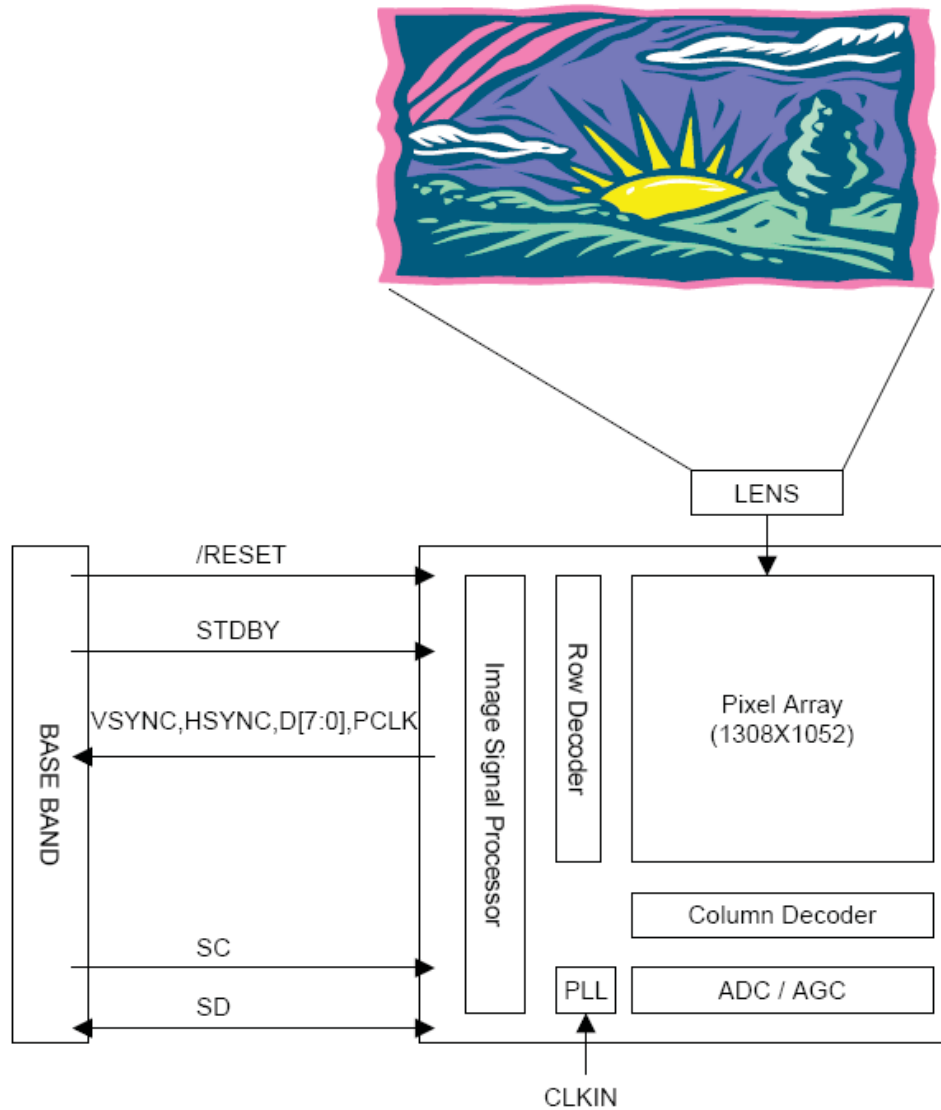


Figure 3.7.2 SENSOR CHIP BLOCK DIAGRAM

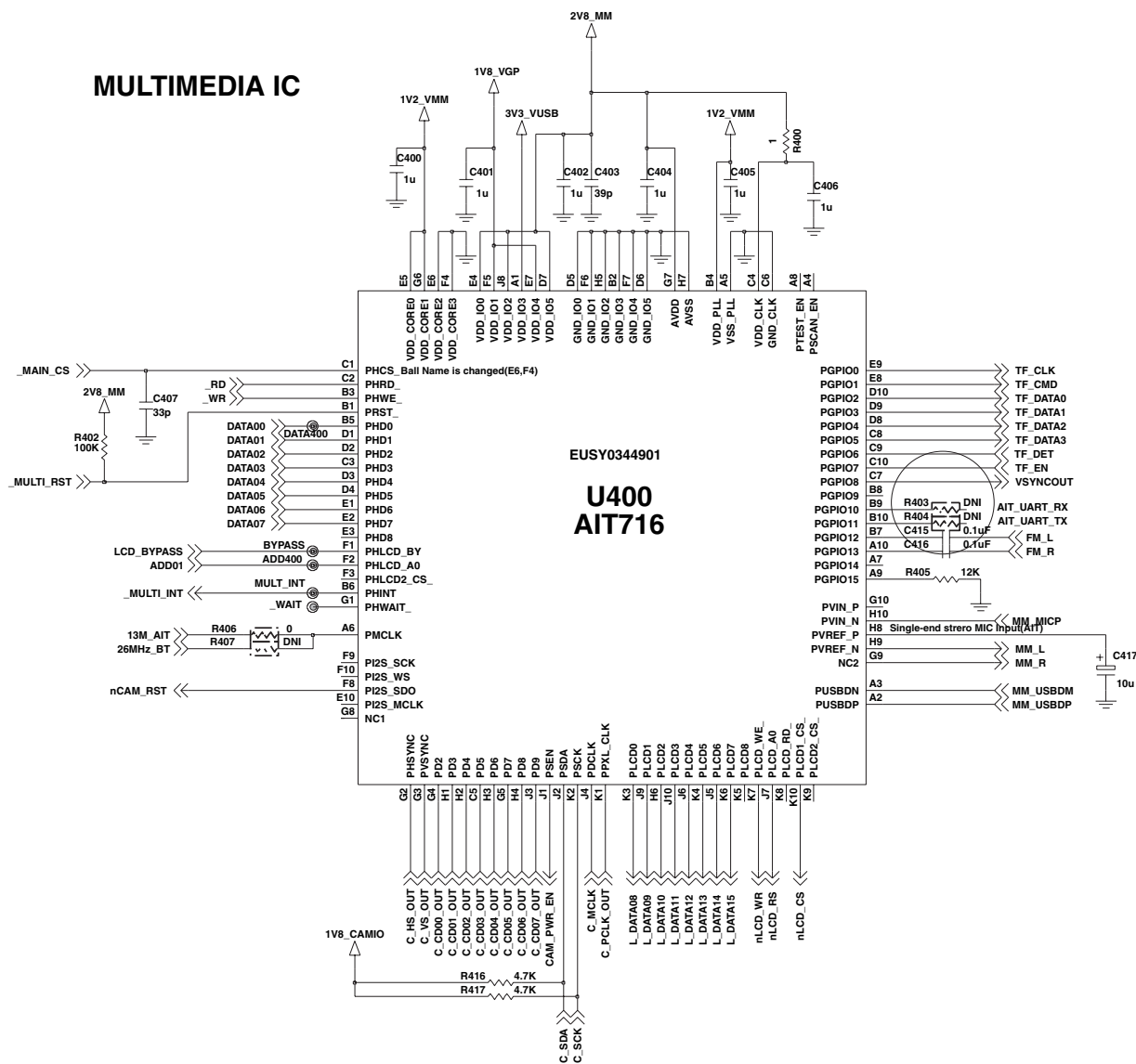


Figure 3.7.3 AIT716 CIRCUIT

3. TECHNICAL BRIEF

3.8 Keypad Switches and Scanning

The key switches are metal domes, which make contact between two concentric pads on the keypad layer of the PCB when pressed. There are 22 switches (Normal Key 22EA), connected in a matrix of 5 rows by 5 columns, as shown in Figure 3-8, except for the power switch (END), which is connected independently. Functions, the row and column lines of the keypad are connected to ports of AD6726. The columns are outputs, while the rows are inputs and have pull-up resistors built in. When a key is pressed, the corresponding row and column are connected together, causing the row input to go low and generate an interrupt. The columns/rows are then scanned by AD6726 to identify the pressed key.

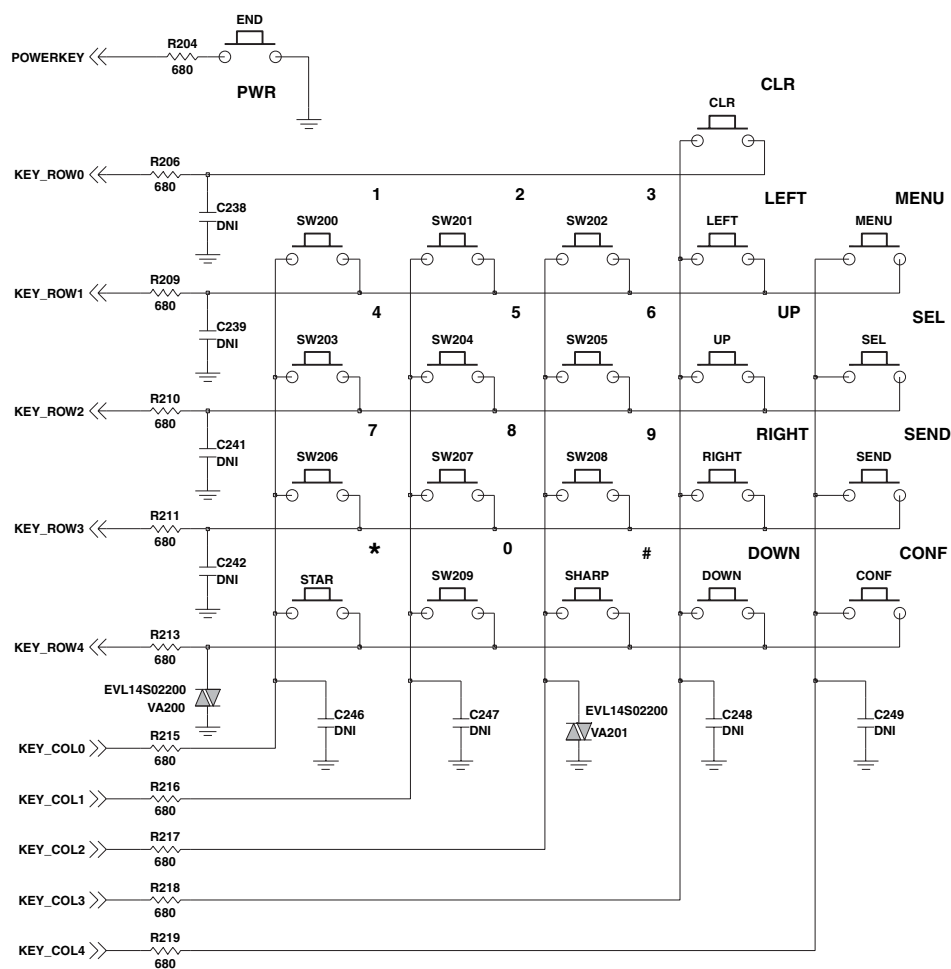


Figure 3.8 Keypad Switches and Scanning

3.9 Microphone

The microphone is placed in the Front cover and contacted to main PCB. The audio signal is for normal voice call & multimedia functions, Microphone is switched by analog switch(U300), which connects audio inputs from the microphone to main baseband chip and MMP. The audio signal is passed to MAIN_MICP and MAIN_MICN pins of AD6726. The voltage supply VMIC is output from AD6726, and is a biased voltage for the MIC_P. The MIC_P and MIC_N signals are then A/D converted by the voice band ADC part of AD6726. The digitized speech (PCM 8KHz, 16KHz) is then passed to the DSP section of AD6726 for processing (coding, interleaving etc). For multimedia functions, these signal processing is done by MMP(AIT716).

MICROPHONE PATH SELECTION

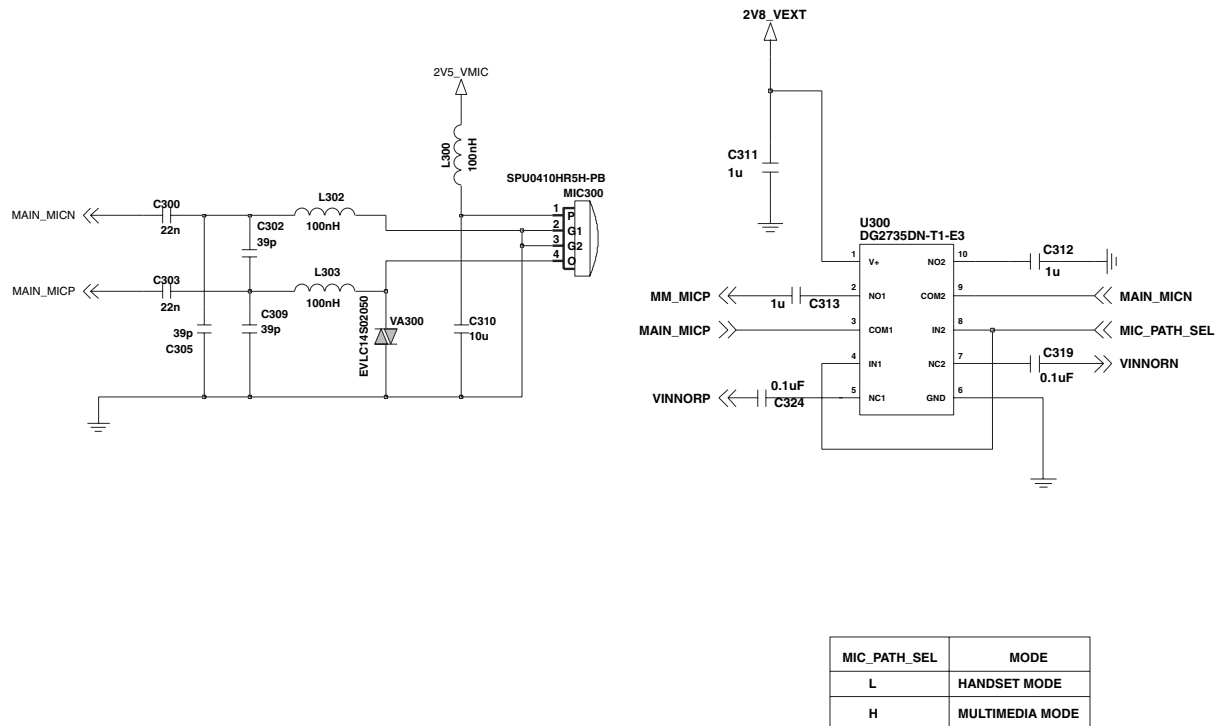


Figure 3.9 Connection between Microphone, AD6726 and AIT716

3. TECHNICAL BRIEF

3.10 Main Speaker

Main Speaker is the output device for all acoustic functions, which are speakerphone, MIDI ringtone, FM radio, Music play and etc. The speaker is driven by audio amplifier(U201).

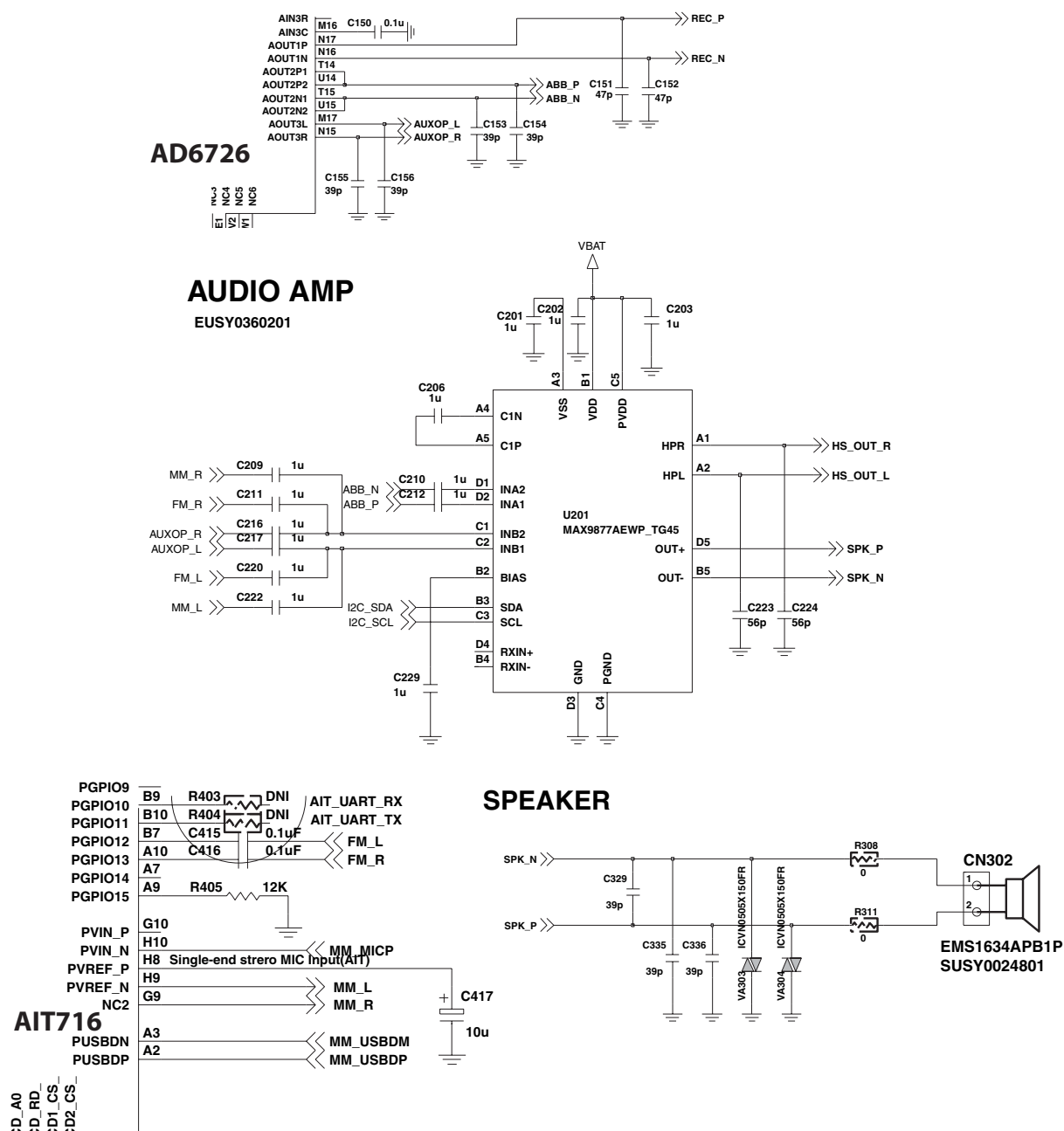


Figure 3.10 Connection between Speaker, Amp and AD6726 & AIT716

3.11 Headset Interface

This phone has 6 electrodes for headset interface, such as GND, AUXIP, AUXIN, HS_OUT_L, HS_OUT_R, JACK_DETECT and ACC_DET.

Switching from Receiver to Headset Jack

If jack is inserted, JACK_DETECT goes from high to low.

Audio path is switched from receiver to earphone by JACK_DETECT interrupt.

Switching from Headset Jack to Receiver

If jack is removed, JACK_DETECT goes from low to high.

Audio path is switched from earphone to receiver by JACK_DETECT interrupt.

Hook detection

If hook-button is pressed, ACC_DET is changed from high to low.

This is detected by ACC_DETECT of AD6726

And then hook is detected.

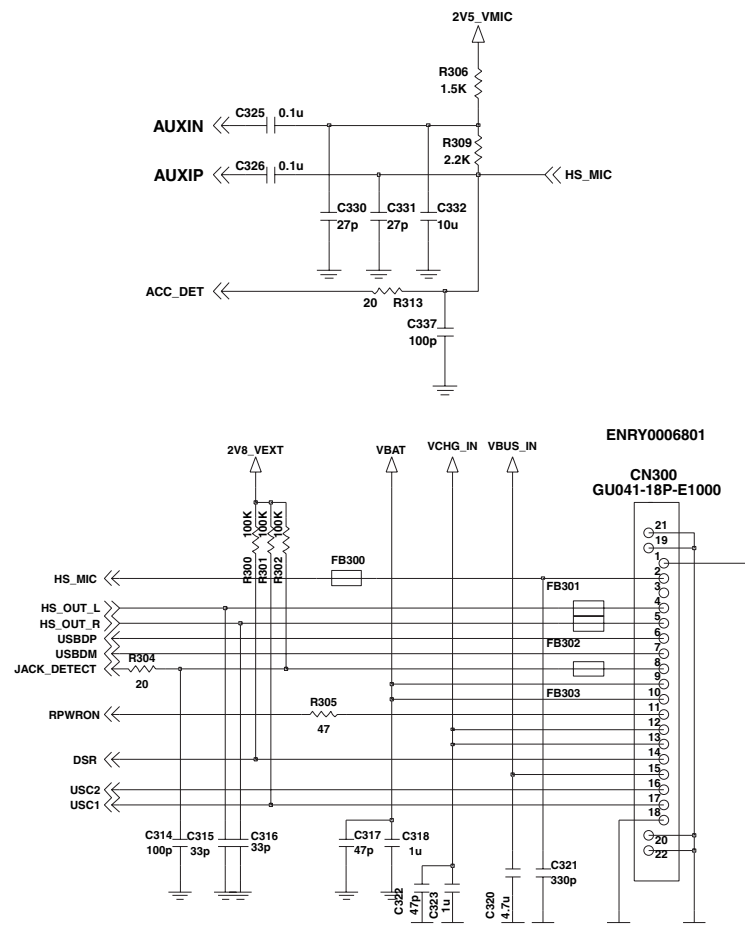


Figure 3.11 HEADSET JACK INTERFACE

3. TECHNICAL BRIEF

3.12 Key Back-light Illumination

In key back-light illumination, there are 8 white LEDs in Main Board , which are driven by LED signal from AD6726.

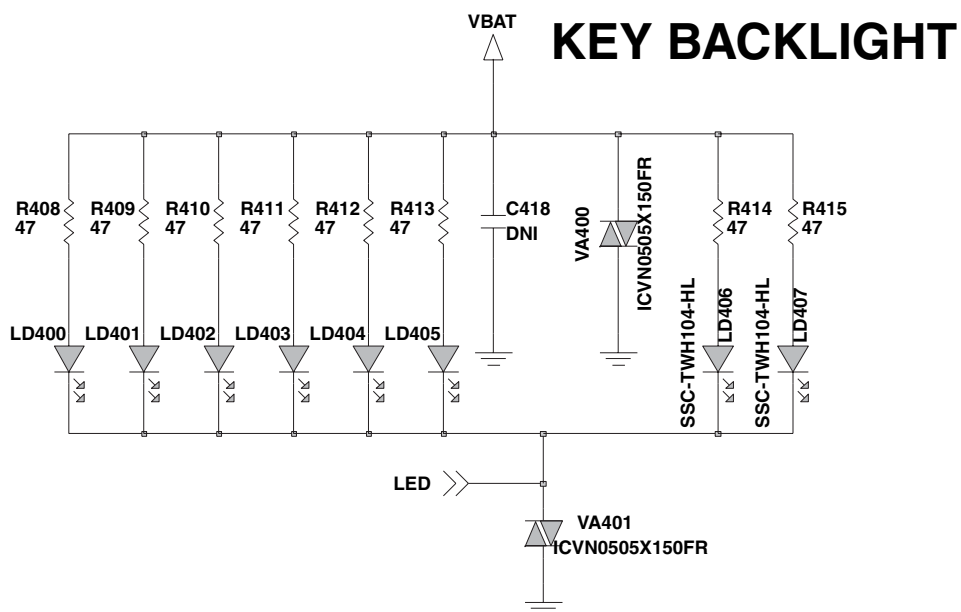


Figure 3.12 KEY BACK-LIGHT ILLUMINTION

3.13 LCD Back-light Illumination

LCD backlight LEDs is controlled by AD6726 via AAT2845, U404.

MLED is the charge pump output to drive LCD backlight LEDs, and MLED1 & MLED2 are current sink ports.

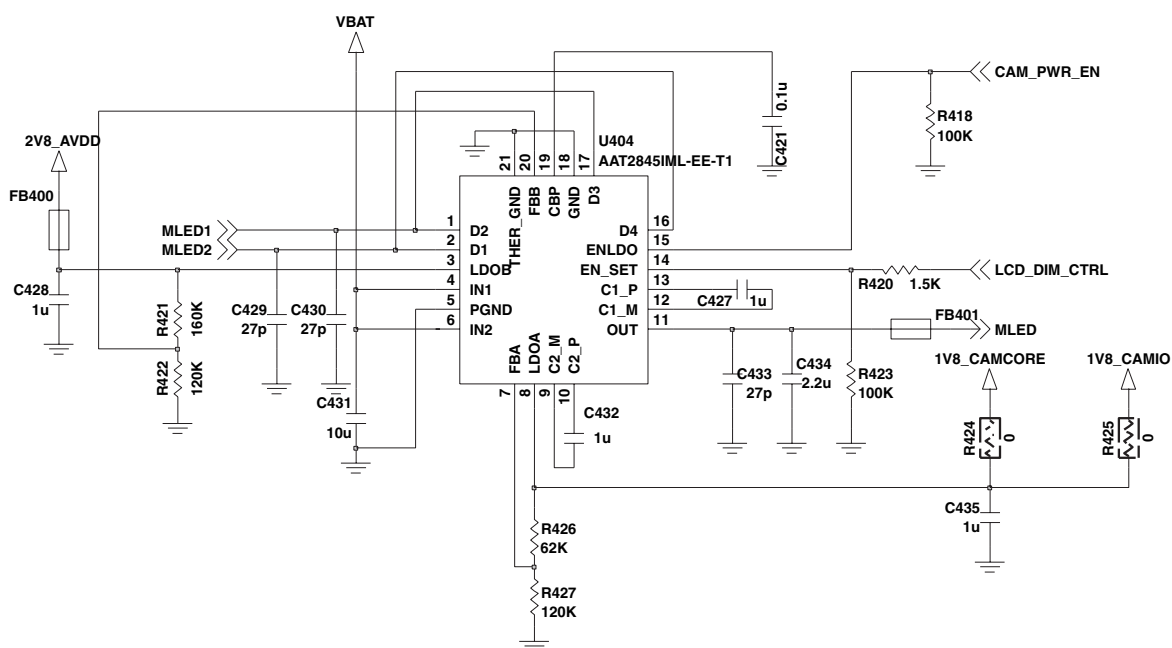


Figure 3.13 MAIN LCD BACKLIGHT ILLUMINATION

3.14 VIBRATOR

VIBRATOR

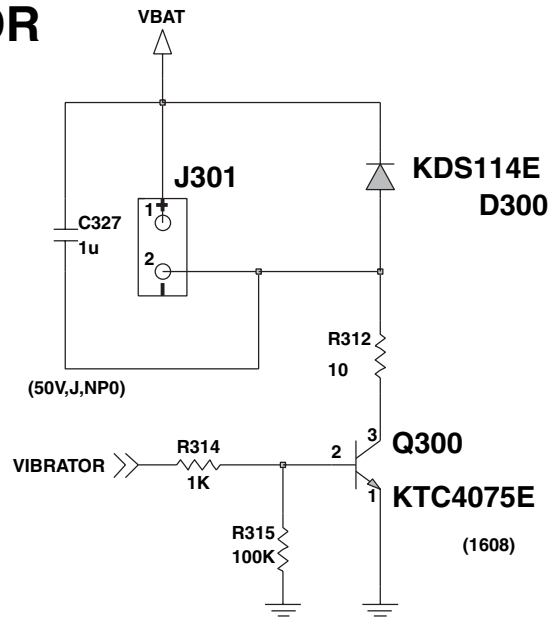


Figure 3.14 Vibrator

3.15 Battery Charging

The ISL9221 accepts two power inputs, normally one from a USB port and the other from a TA.

Charging Process

- Connecting TA & Charger Detection
- Control the charging Current by U303(Charger IC)
- Charging Current flows into the Battery.

Pins of U304 used for charging

- VDC : Charger supply.
- VUSB_IN : USB charging supply.
- IMIN: IMIN is the programmable input for the end-of-charge current.
- IVDC: Program the TA charge current during the constant current mode.
- IUSB : Program the USB charge current during the constant current mode.
- _EN :Enable logic input
- BAT : Charger output pin.
- USB_BYP : Output pin from USB bypass circuitry
- VDC_BYP : Output Pin of Linear Regulator

TA (Travel Adaptor)

- Input voltage: AC 100V ~ 240V, 50/60Hz
- Output voltage: DC 5.1V
- Output current: Max 700mA

Battery

- Li-ion battery (Max 4.2V, Nom 3.7V)
- Standard battery: Capacity - 1100mAh

CHARGE(TA+USB)

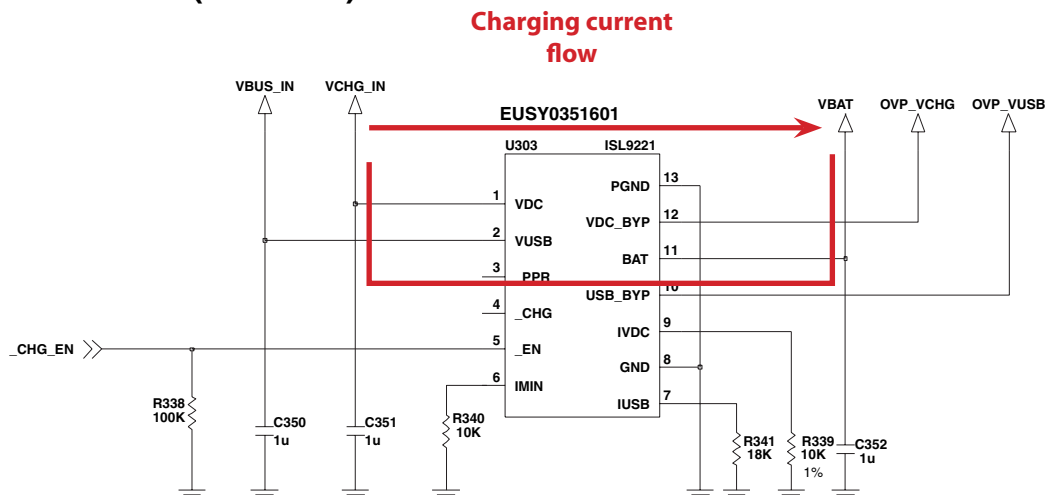


Figure 3.15 CIRCUIT FOR BATTERY CHARGING

4. TROUBLE SHOOTING

4. TROUBLE SHOOTING

4.1 RF Component

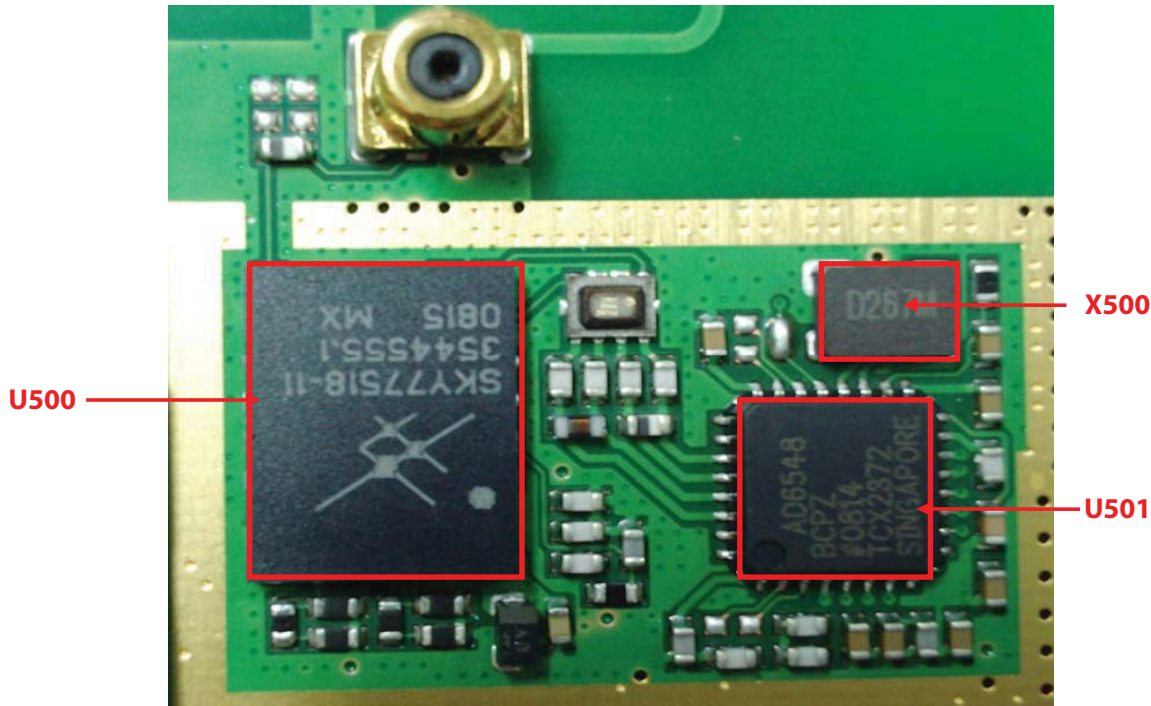
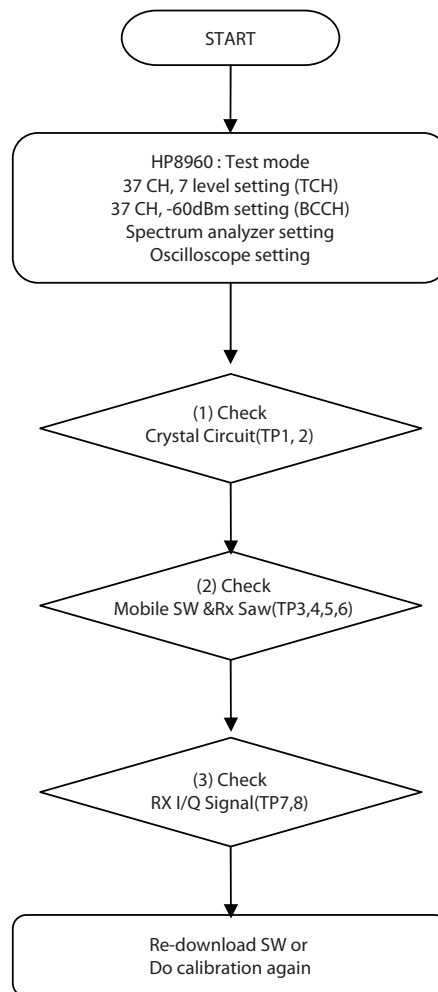


Figure 4.1

U501 (AD6548)	RF Main Chip (Transceiver)
X500	Crystal, 26MHz Clock
U500	SKY77518(ASM+PAM)

4.2 RX Trouble

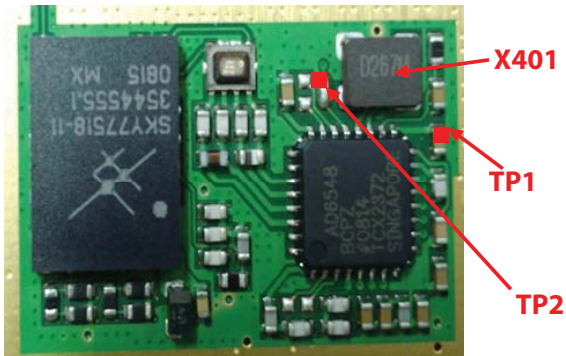
CHECKING FLOW



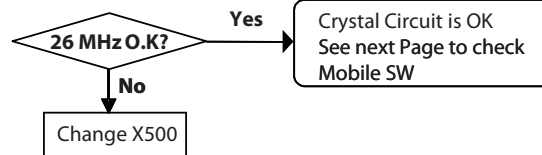
4. TROUBLE SHOOTING

(1) Checking Crystal Circuit

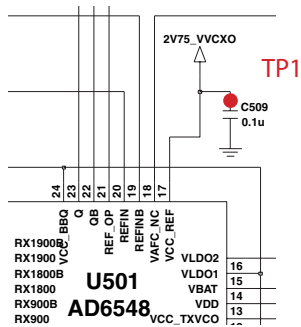
TEST POINT



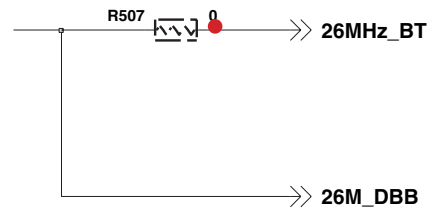
CHECKING FLOW



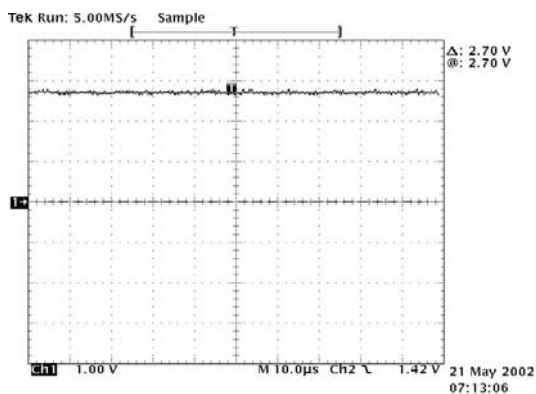
CIRCUIT



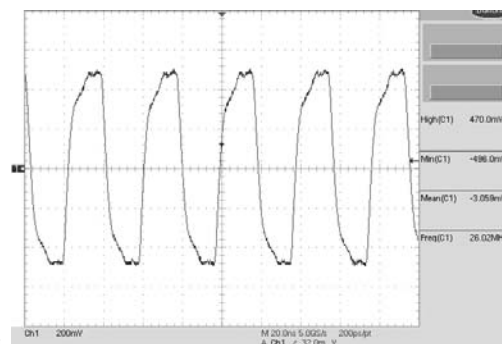
TP2



WAVEFORM



Graph 4.2.1(a)

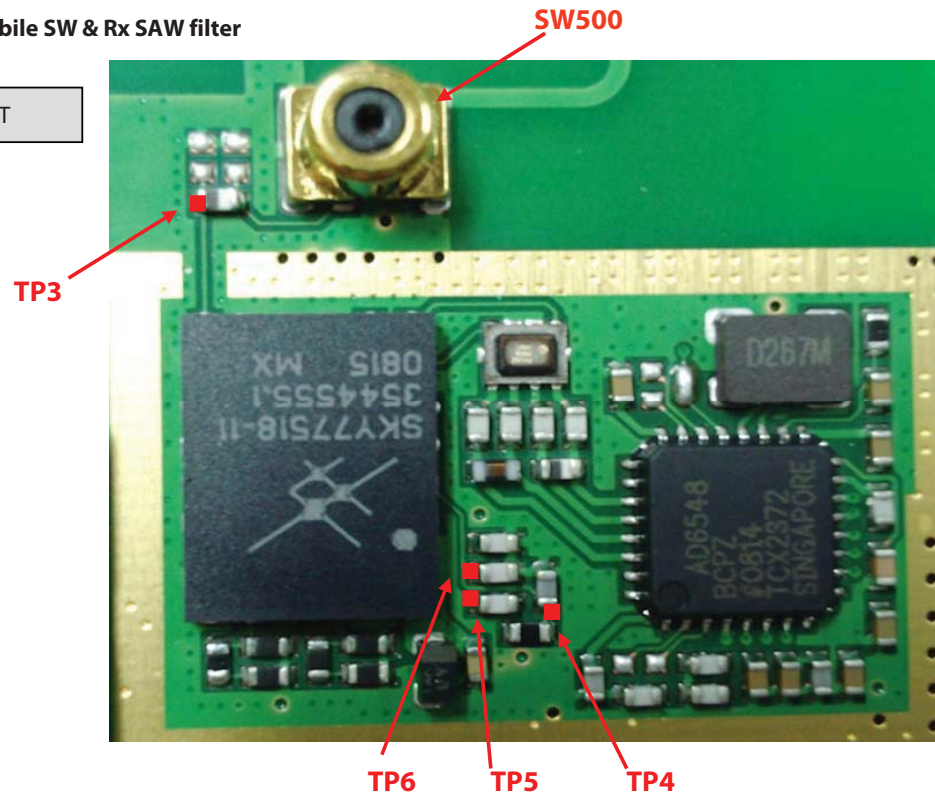


Graph 4.2.1(b)

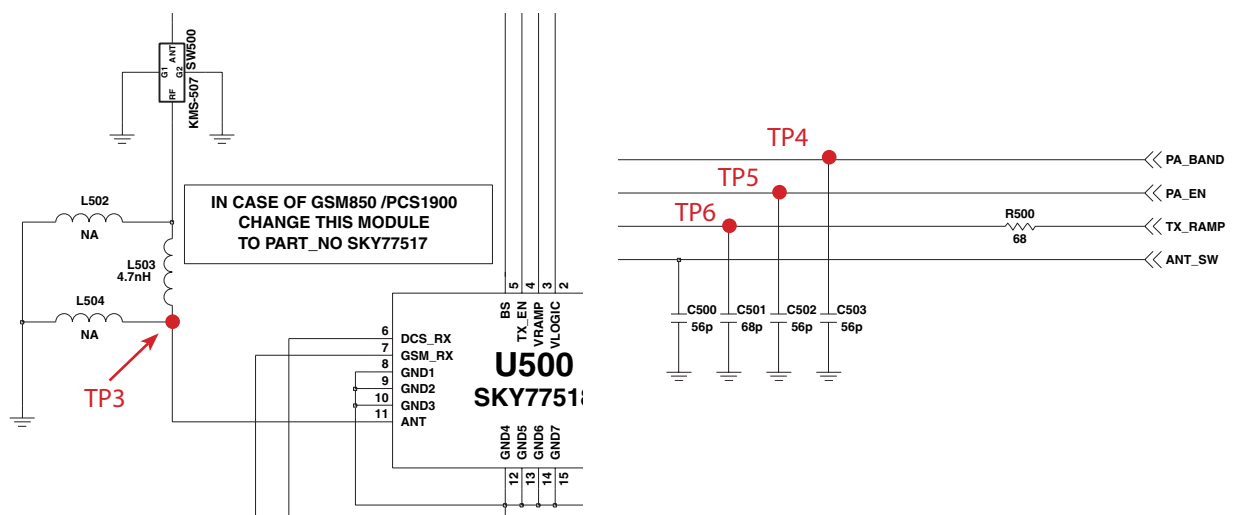
4. TROUBLE SHOOTING

(2) Checking Mobile SW & Rx SAW filter

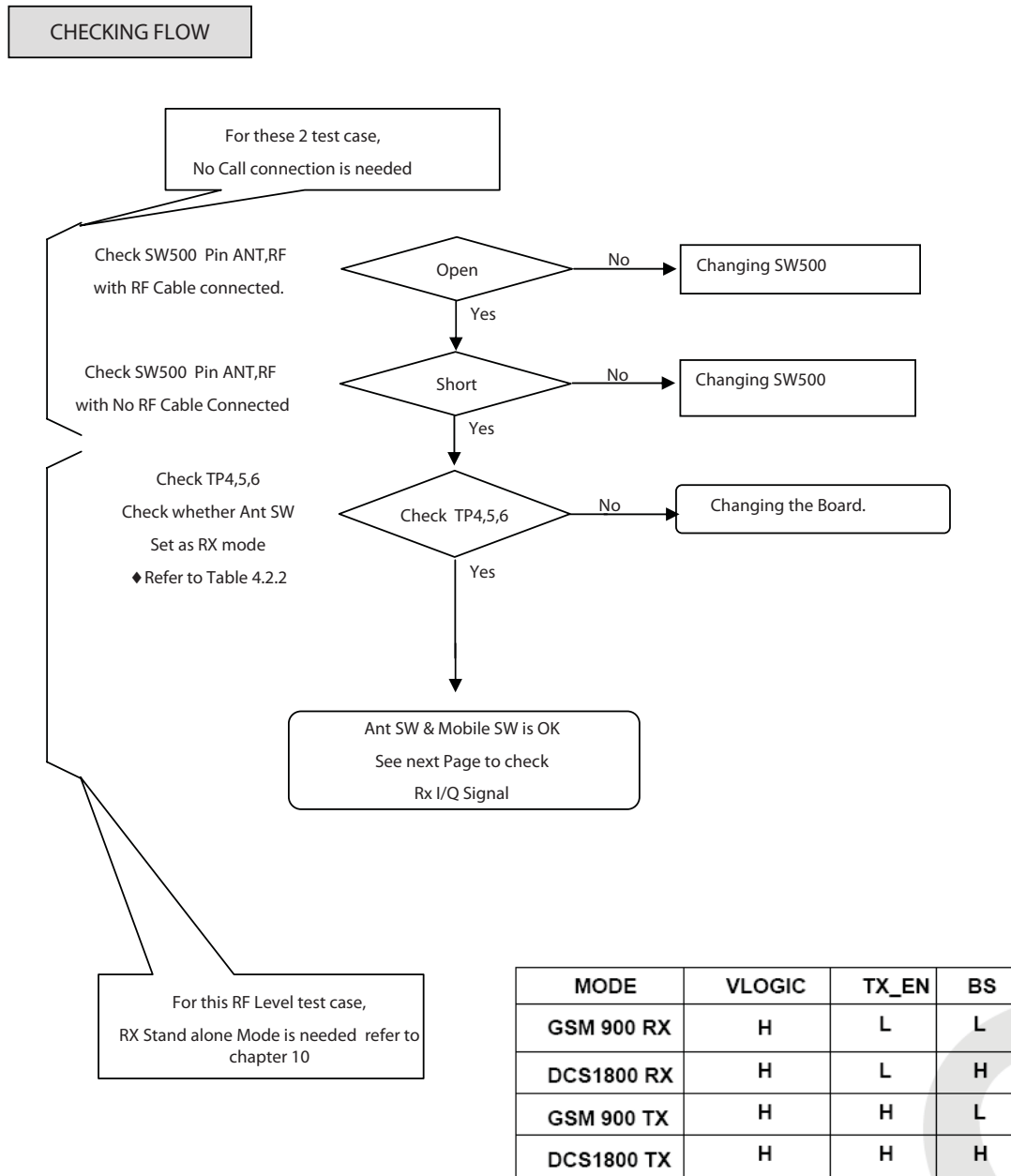
TEST POINT



CIRCUIT



4. TROUBLE SHOOTING

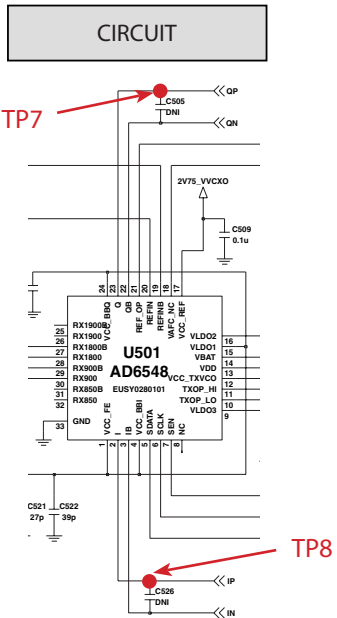
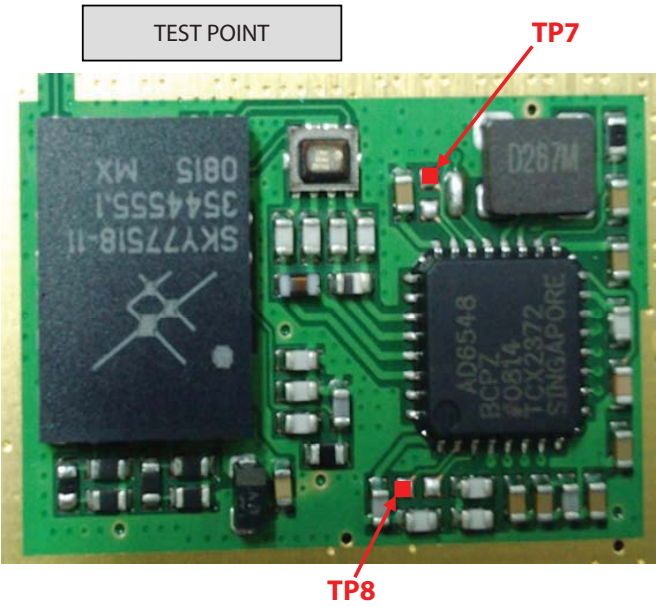


MODE	VLOGIC	TX_EN	BS
GSM 900 RX	H	L	L
DCS1800 RX	H	L	H
GSM 900 TX	H	H	L
DCS1800 TX	H	H	H

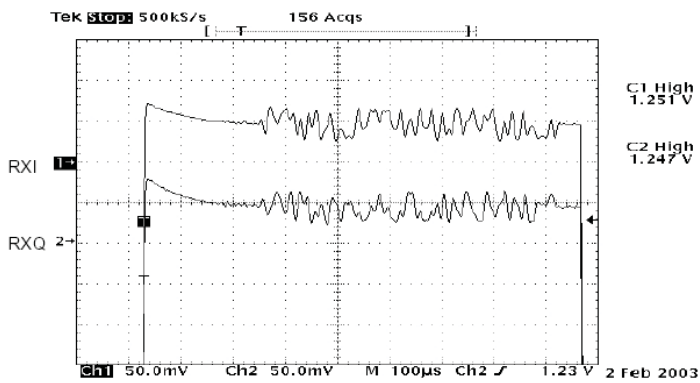
Table 4.2.2

4. TROUBLE SHOOTING

(3) Checking RX I/Q

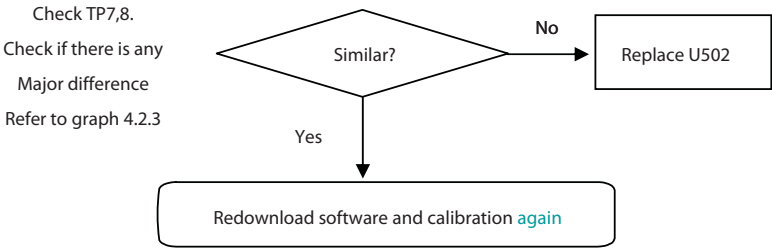


WAVEFORM



Graph 4.2.3

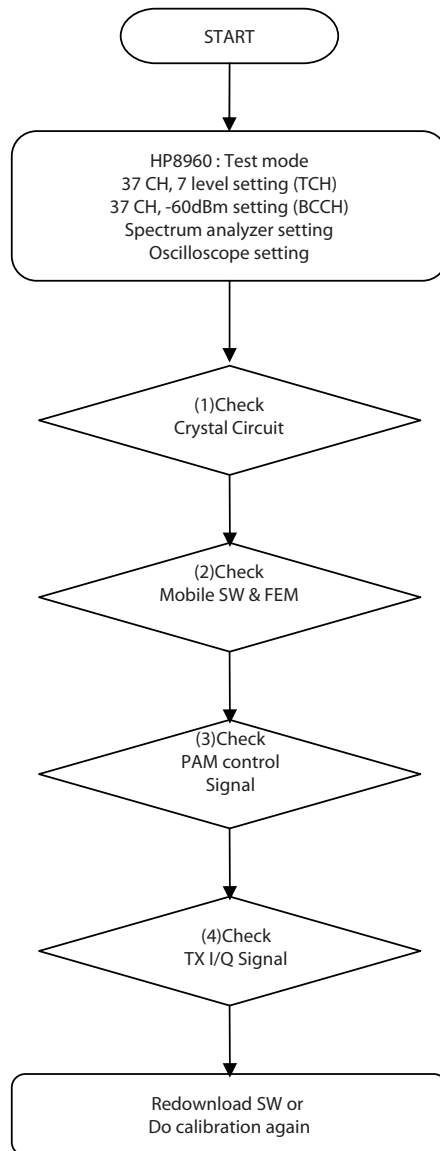
CHECKING FLOW



4. TROUBLE SHOOTING

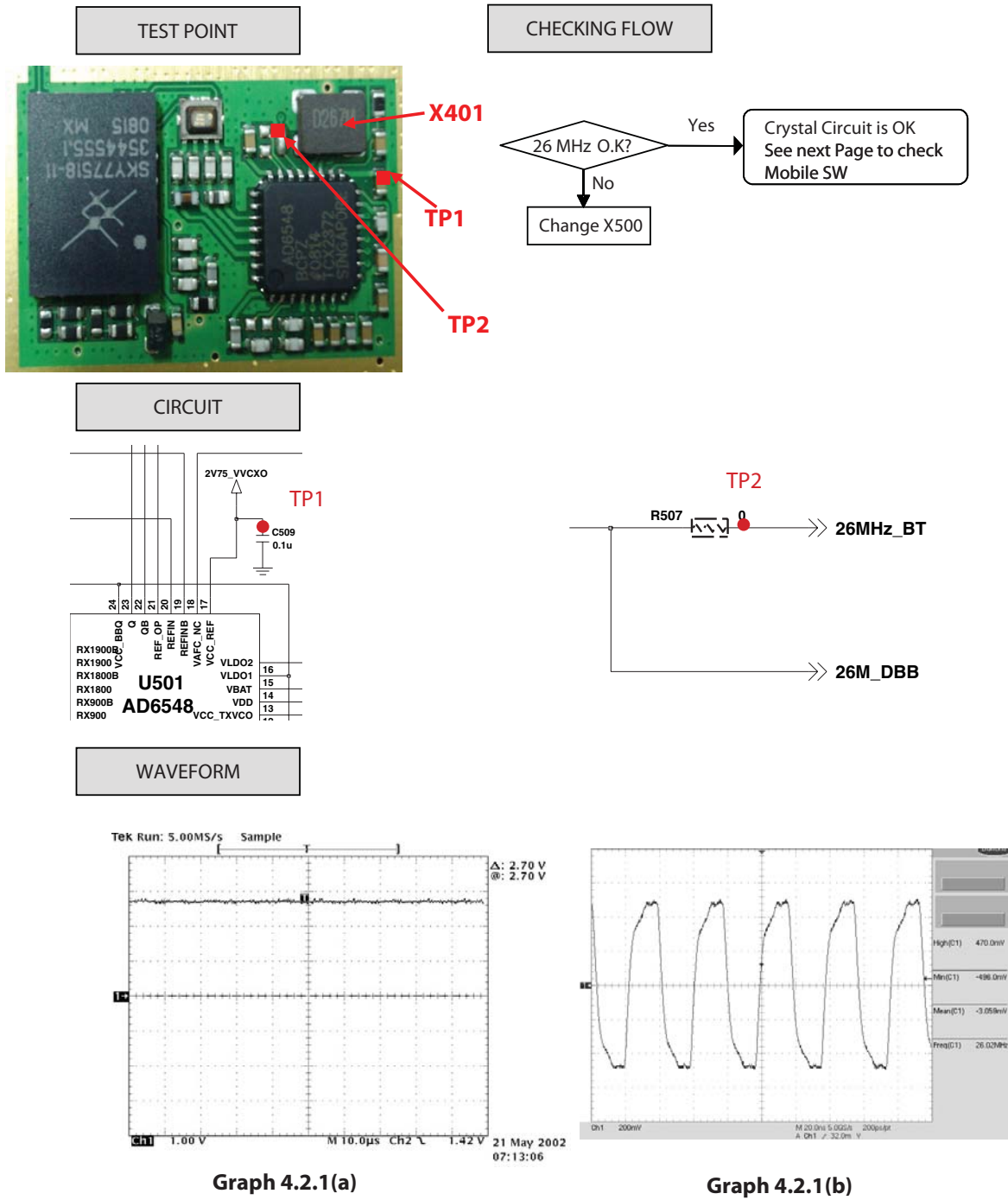
4.3 TX Trouble

CHECKING FLOW



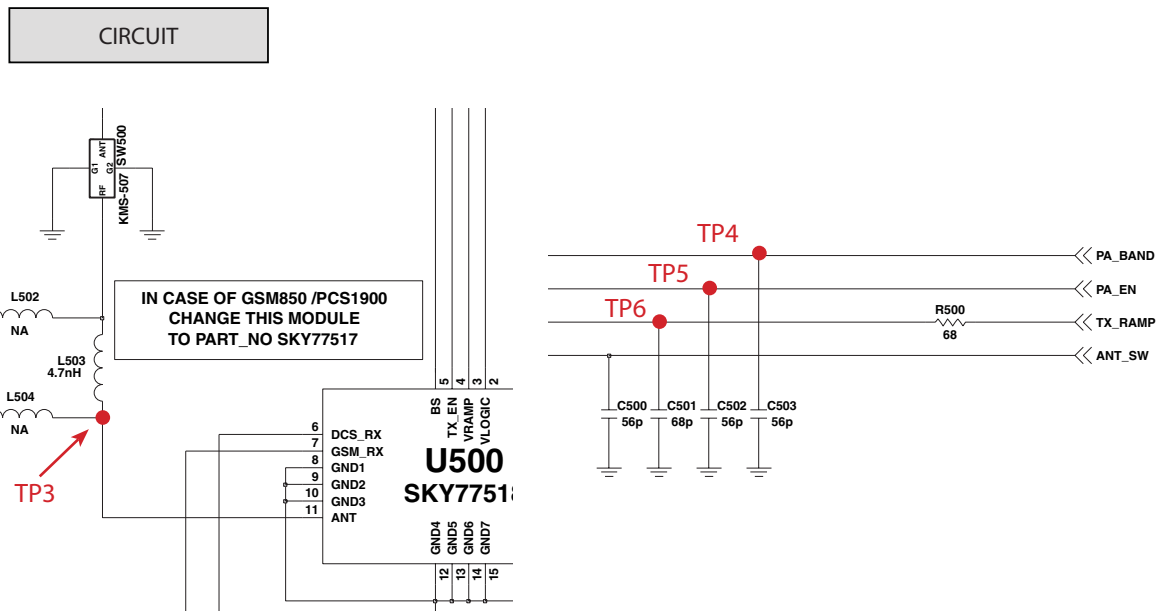
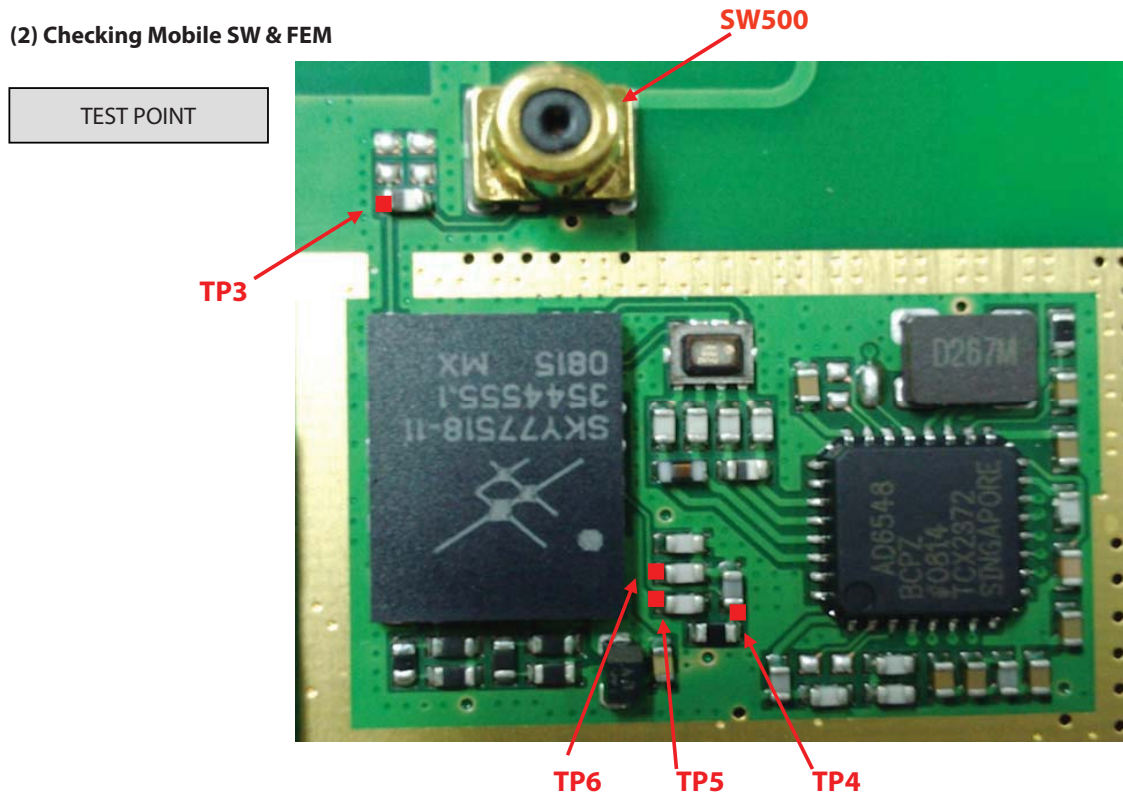
4. TROUBLE SHOOTING

(1) Checking Crystal Circuit

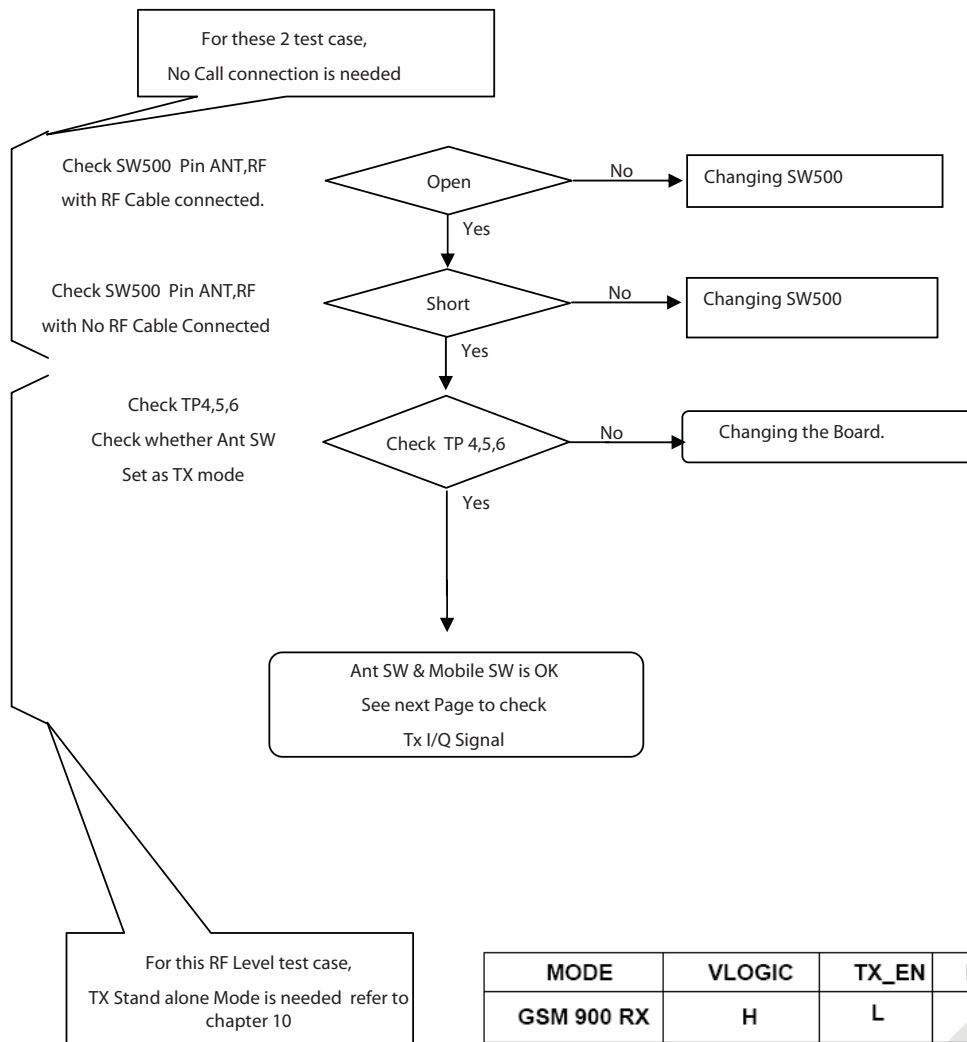


4. TROUBLE SHOOTING

(2) Checking Mobile SW & FEM



CHECKING FLOW



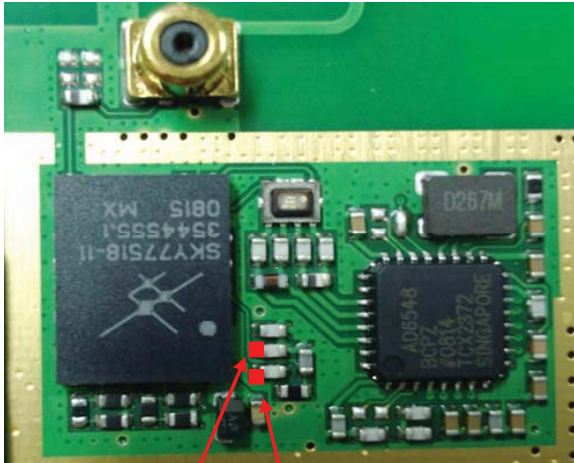
MODE	VLOGIC	TX_EN	BS
GSM 900 RX	H	L	L
DCS1800 RX	H	L	H
GSM 900 TX	H	H	L
DCS1800 TX	H	H	H

Table 4.3.2

4. TROUBLE SHOOTING

(3) Checking PAM Control Signal

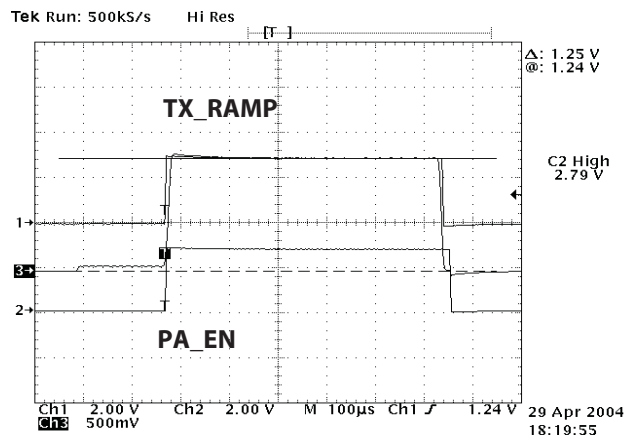
TEST POINT



TP6 TP5

Figure 4.3.3

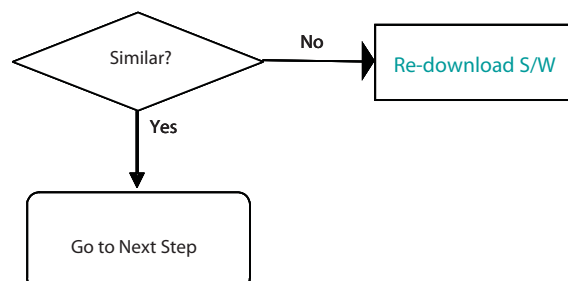
WAVEFORM



Graph 4.3.3

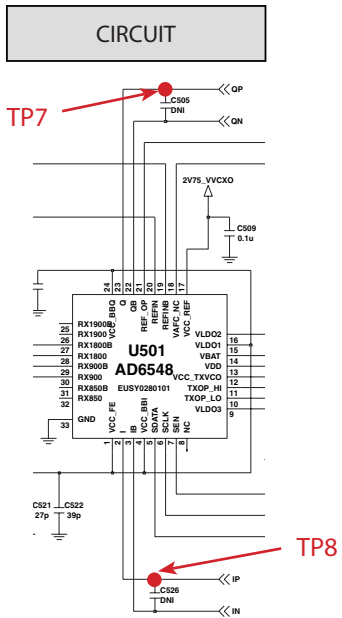
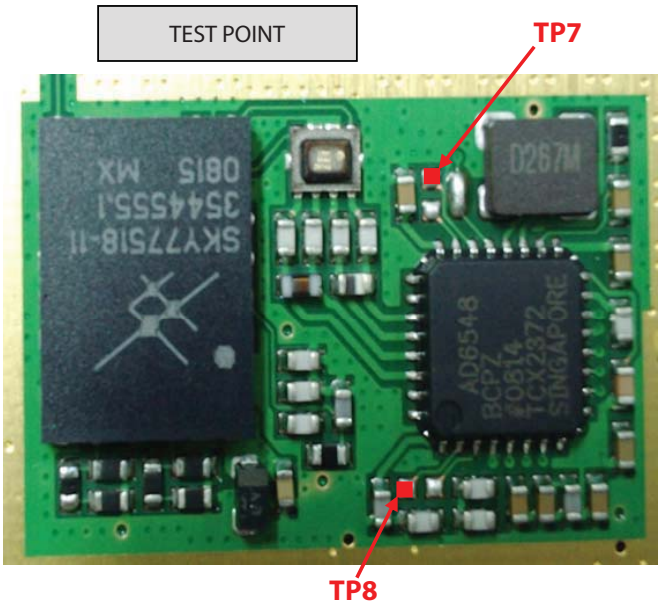
CHECKING FLOW

Check TP7,8
Check if there is
Any Major Difference or not
Refer to Graph 4.3.3

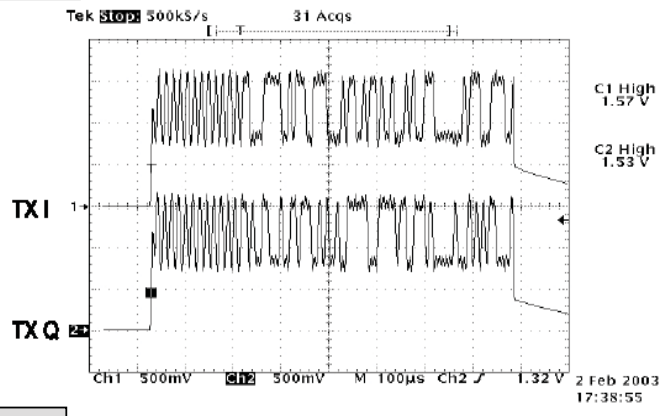


4. TROUBLE SHOOTING

(4) Checking TX I/Q



WAVEFORM

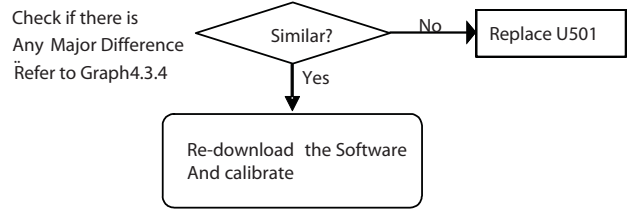


C1 High 1.57 V

C2 High 1.53 V

Graph 4.3.4

CHECKING FLOW



4. TROUBLE SHOOTING

4.4 Bluetooth + FM Radio

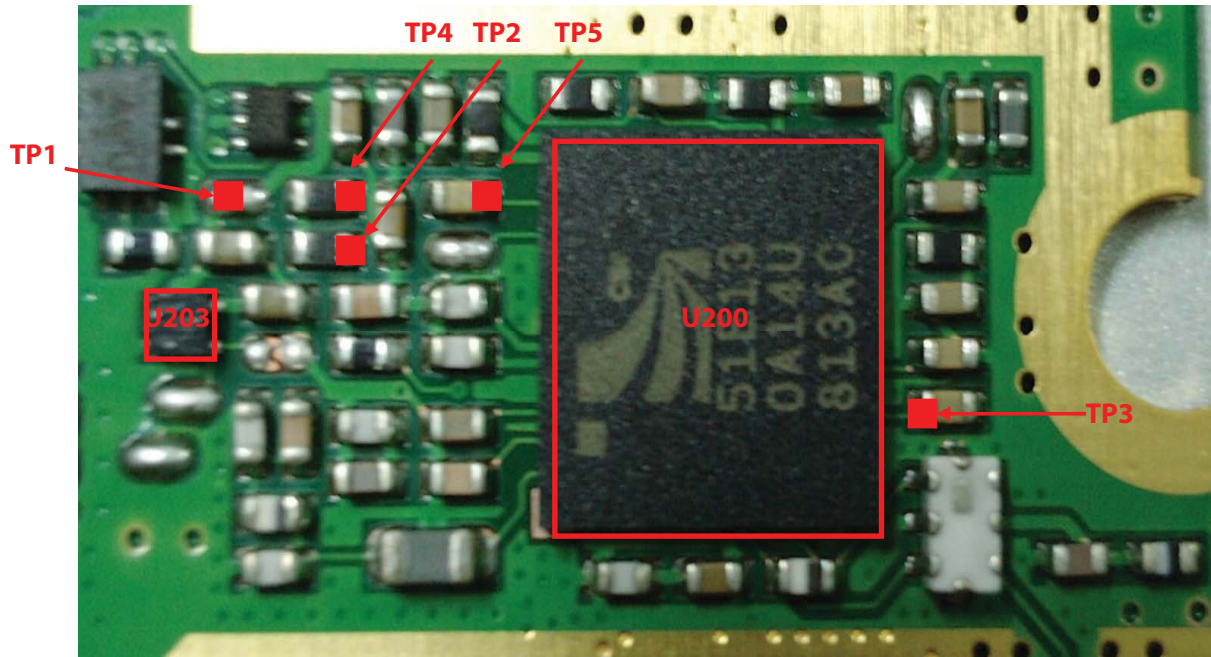
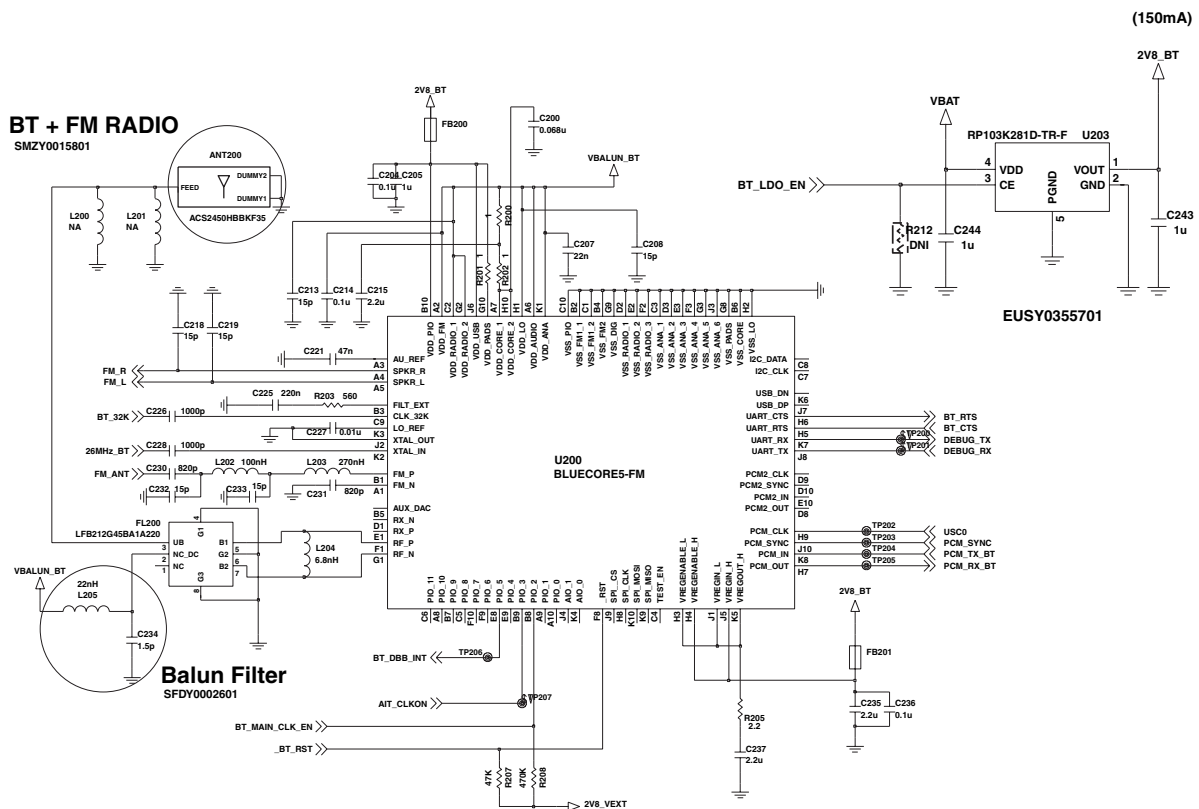
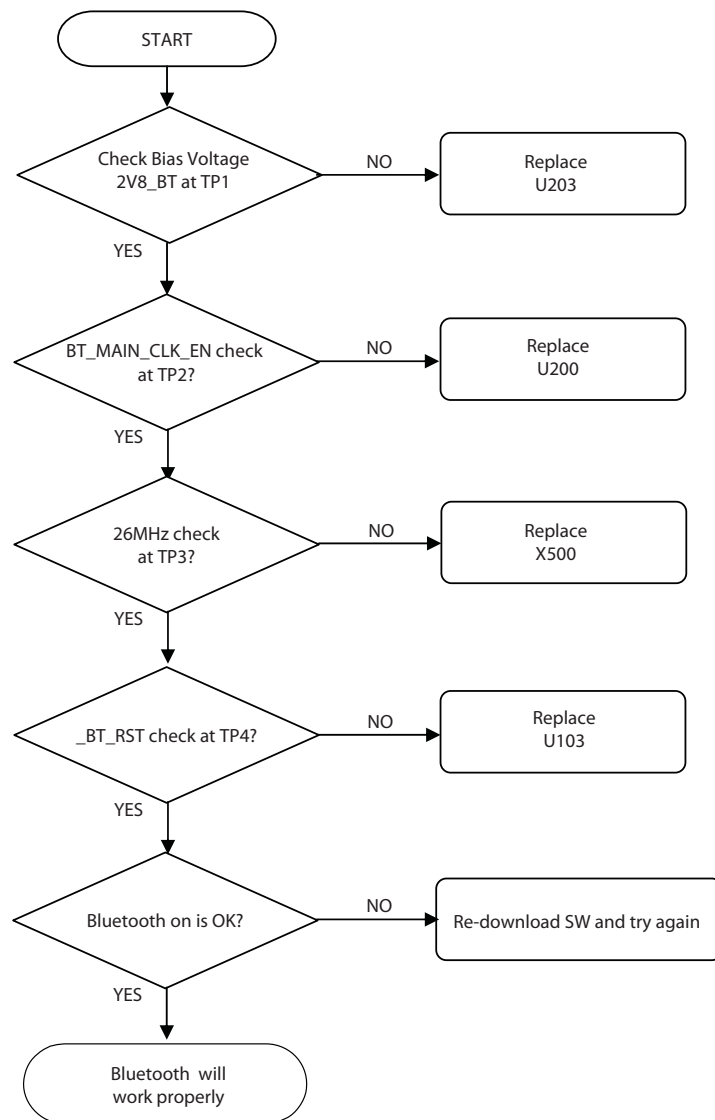


Figure 4.1

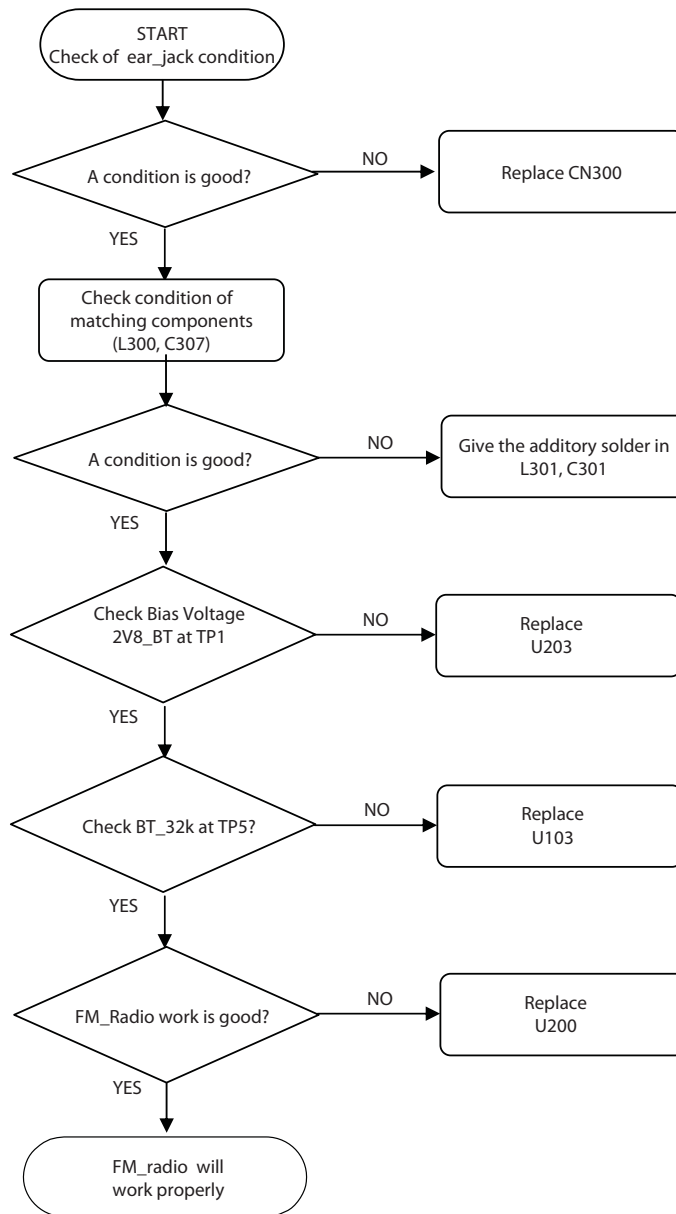


Bluetooth

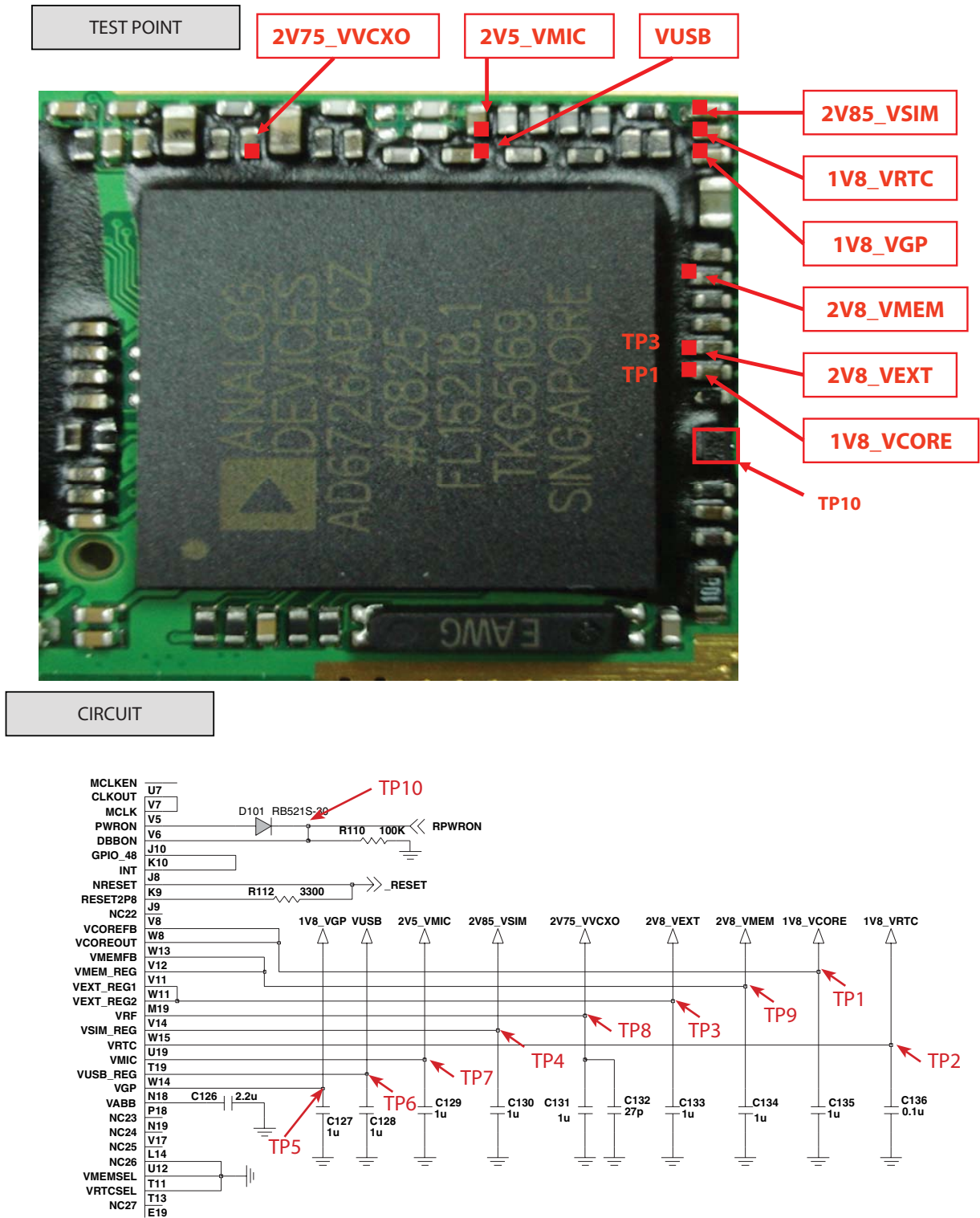


4. TROUBLE SHOOTING

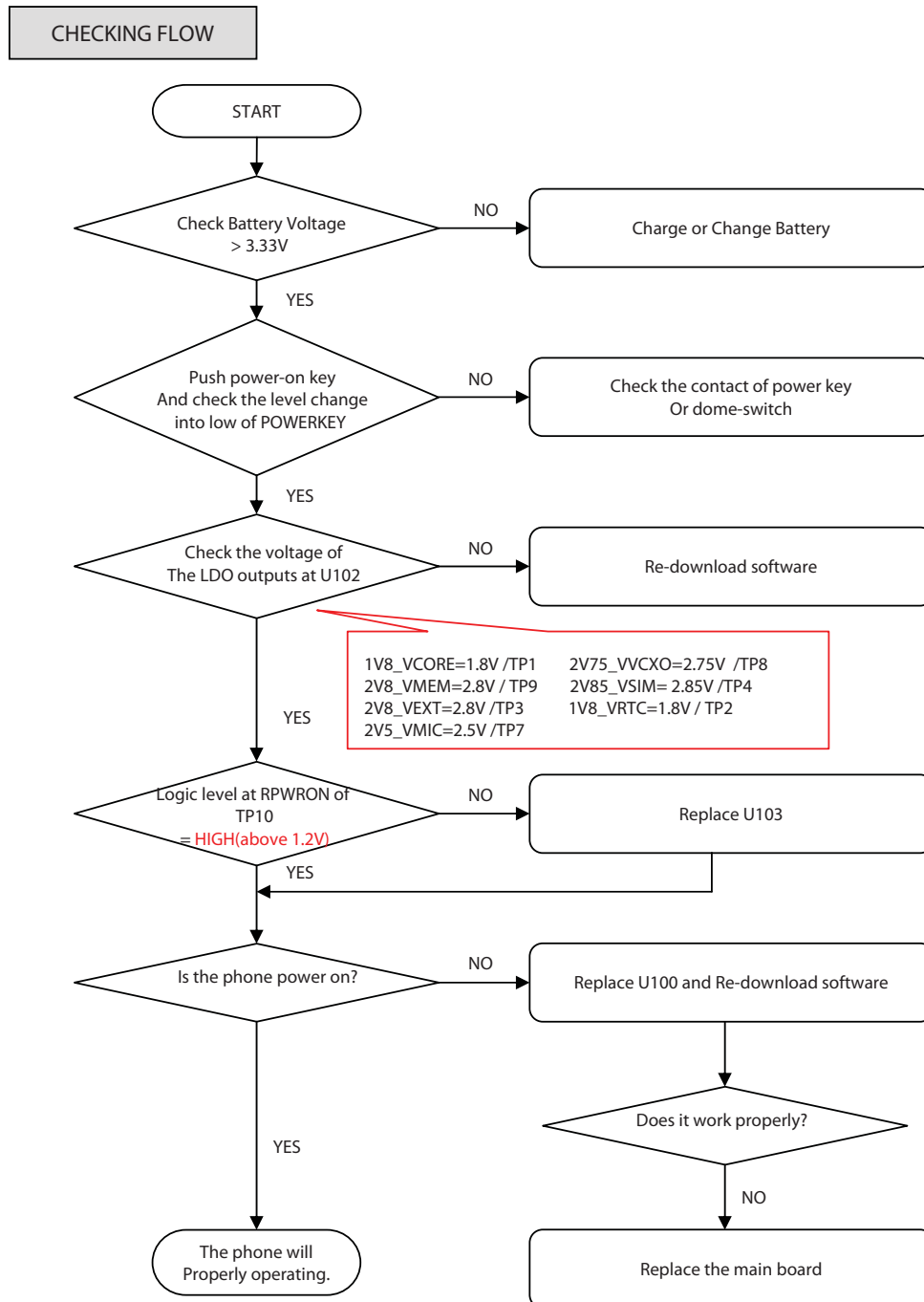
FM Radio



4.5 Power On Trouble



4. TROUBLE SHOOTING



4.6 Charging Trouble

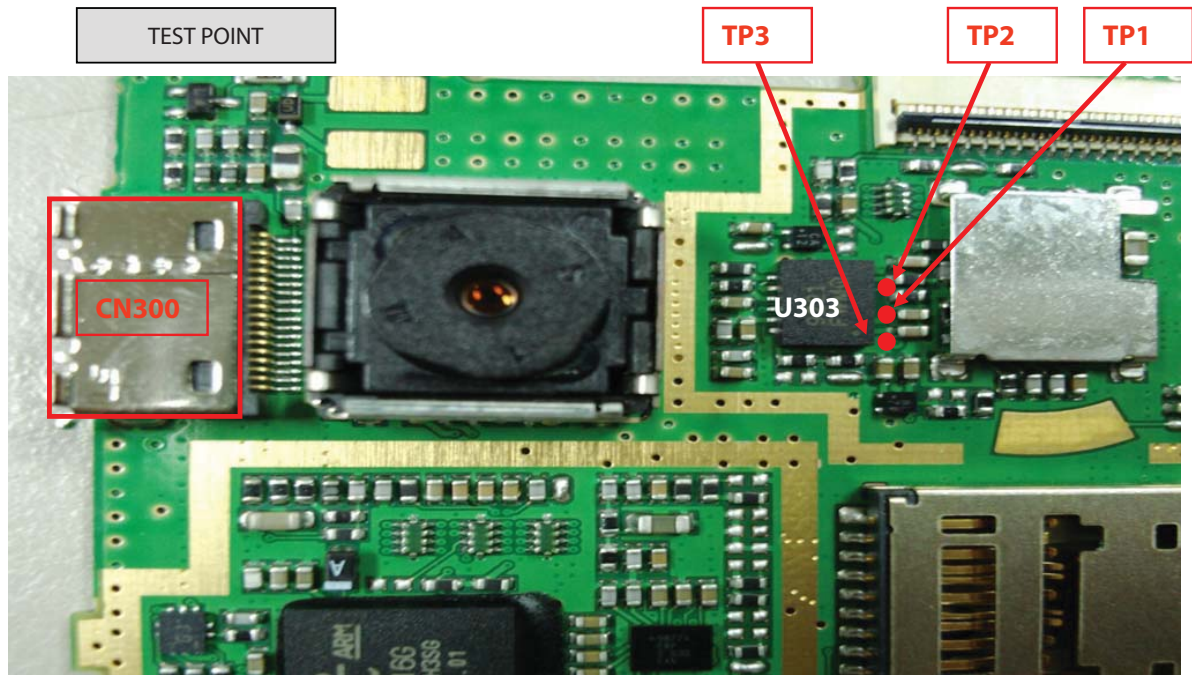
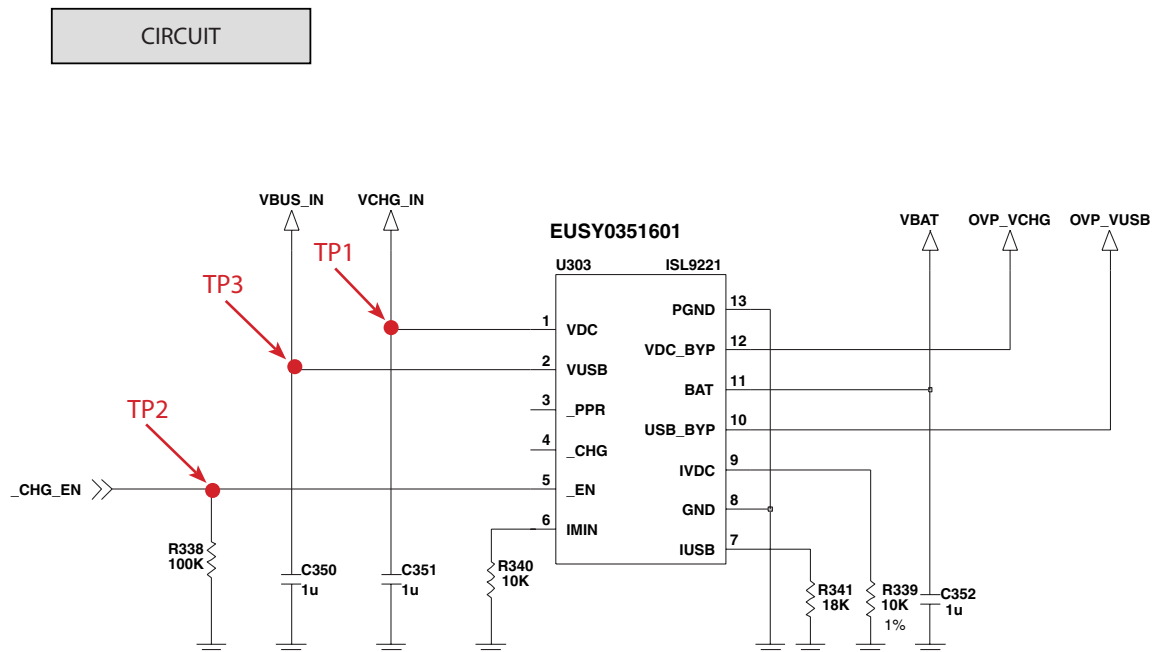


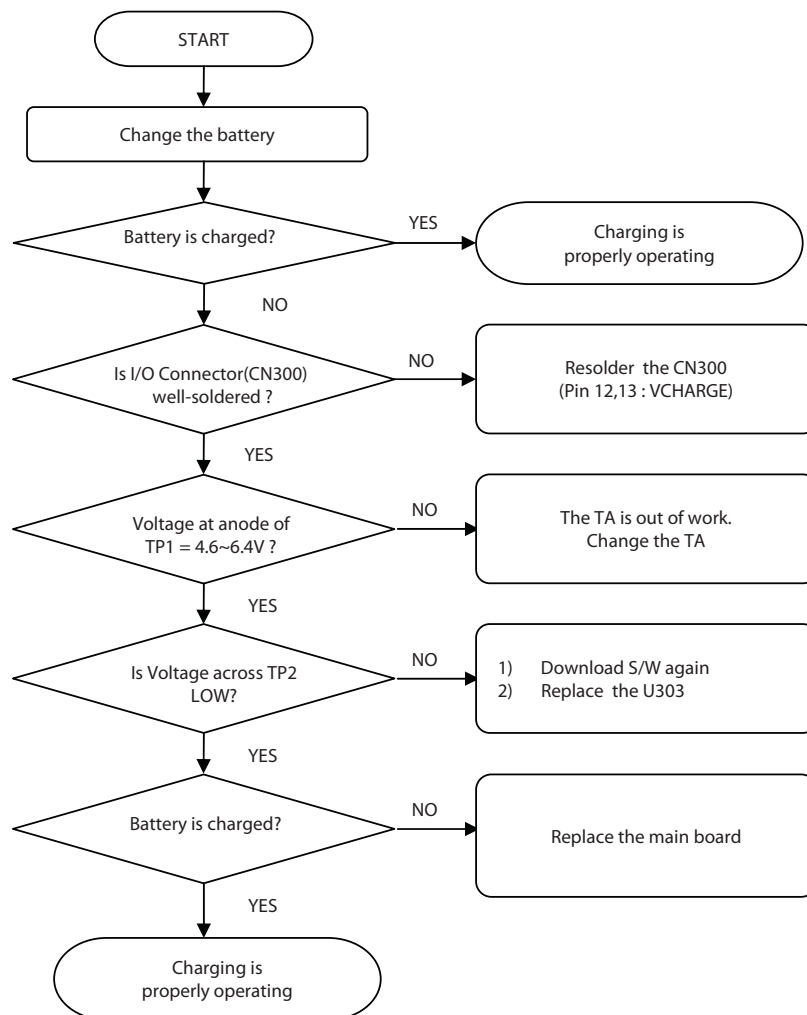
Figure 4.5



4. TROUBLE SHOOTING

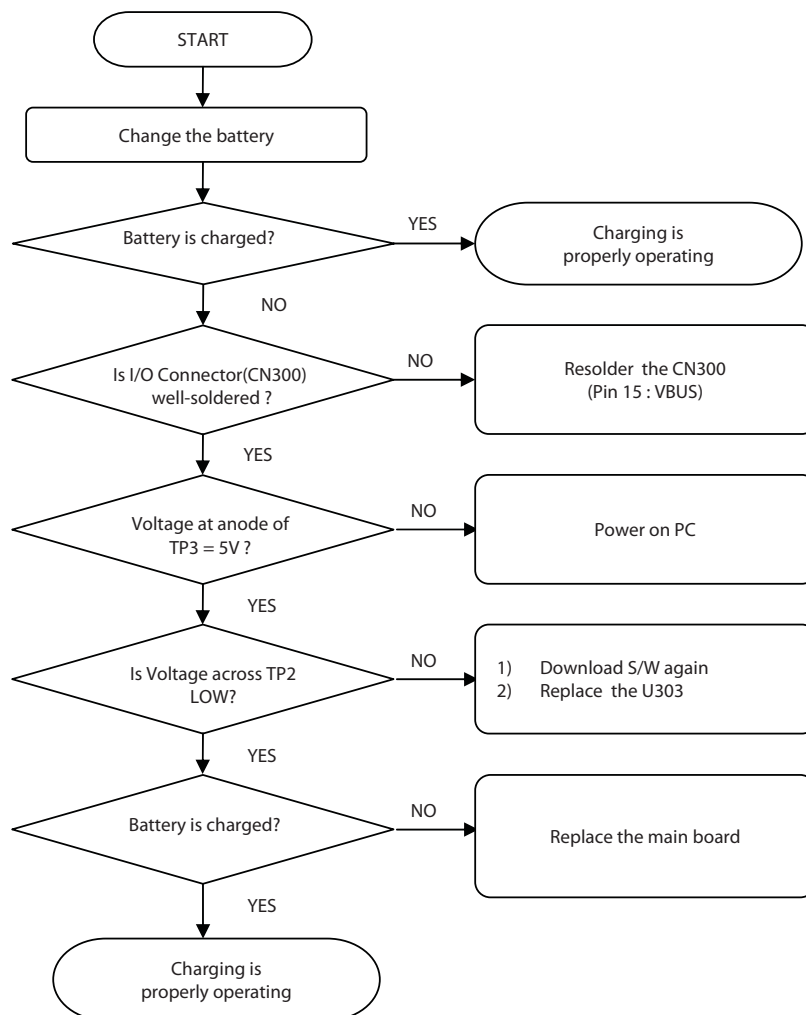
CHECKING FLOW

□ CASE : TA charge



CHECKING FLOW

□ CASE : USB charge



4. TROUBLE SHOOTING

4.7 Vibrator Trouble

TEST POINT

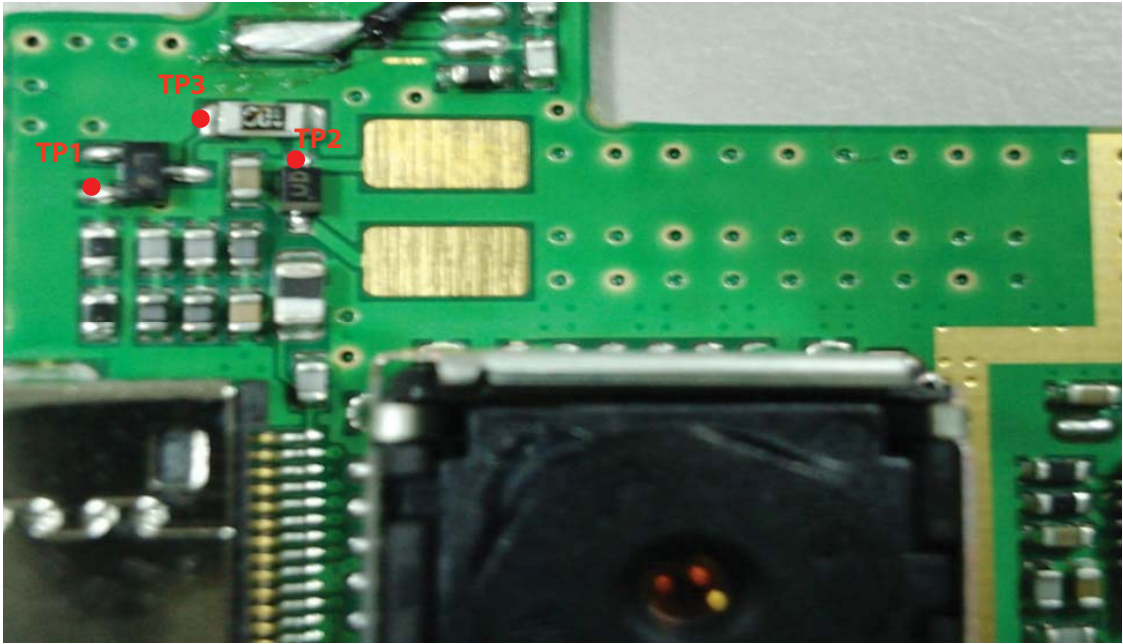
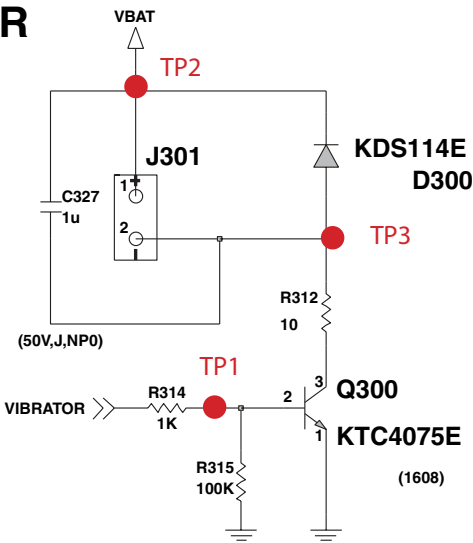


Figure 4.6

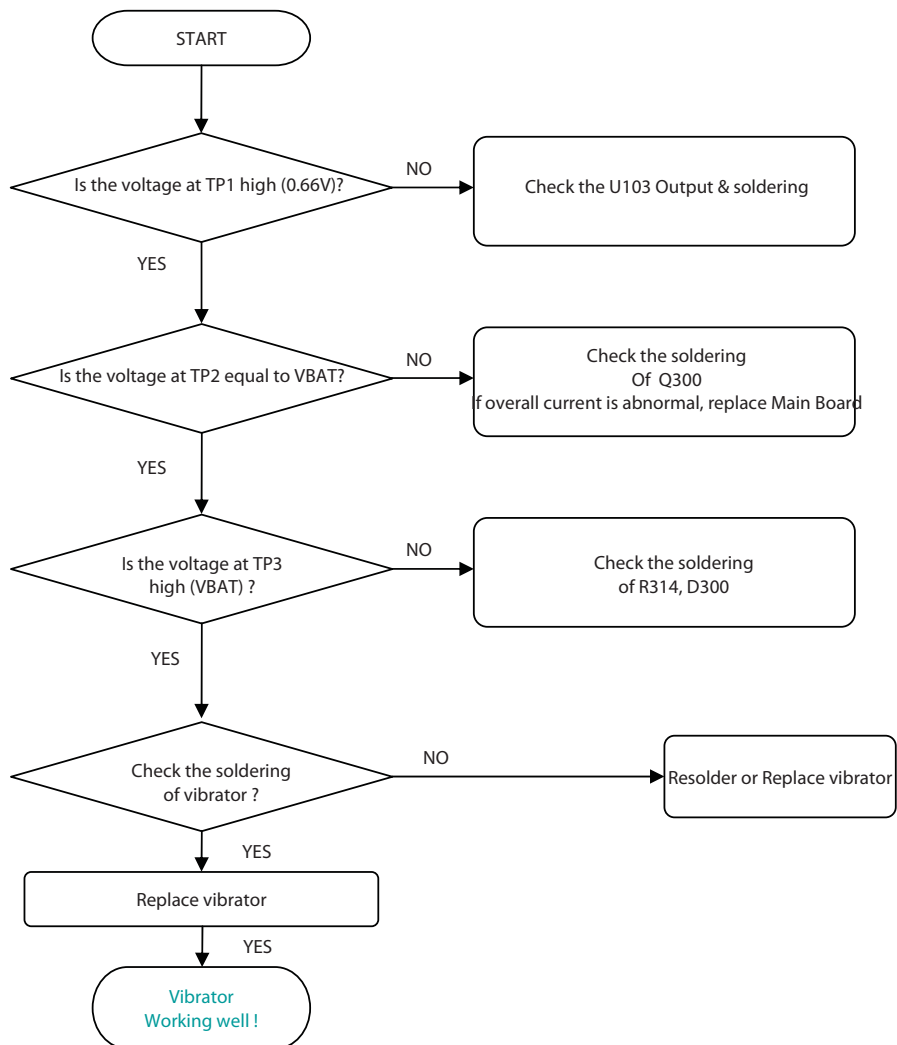
CIRCUIT

VIBRATOR



CHECKING FLOW

SETTING : Enter the engineering mode, and set vibrator on at vibration of BB test menu



4. TROUBLE SHOOTING

4.8 LCD Trouble

TEST POINT

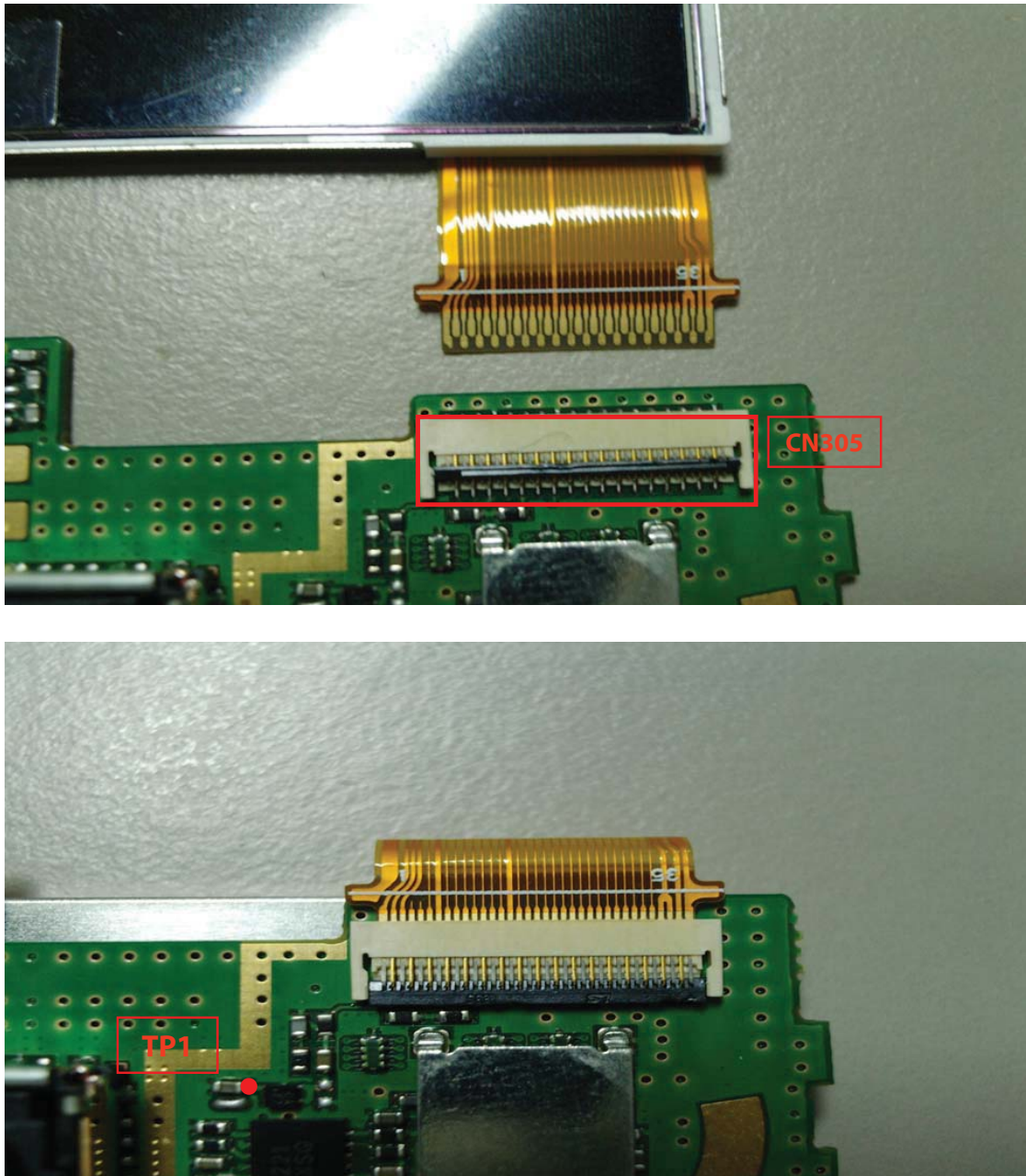
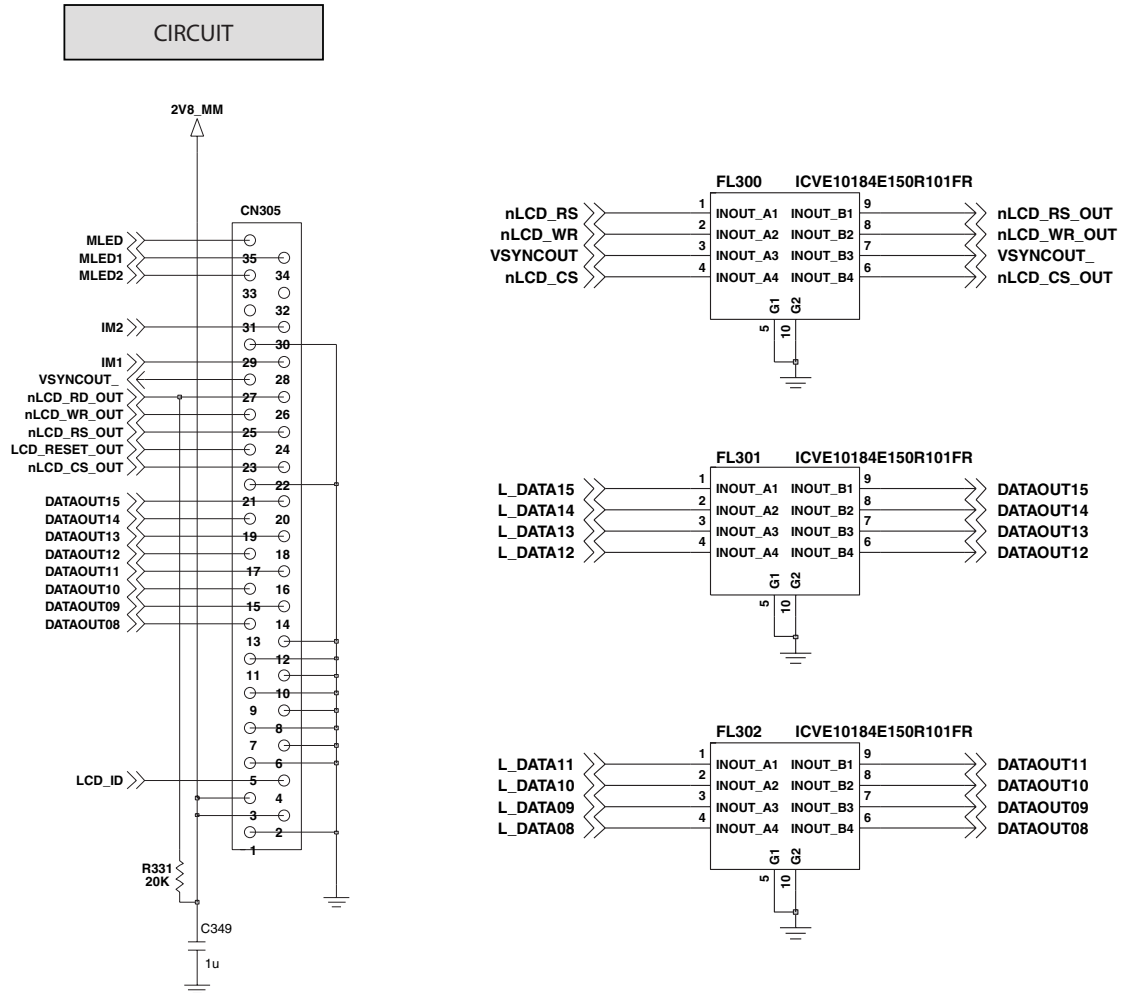
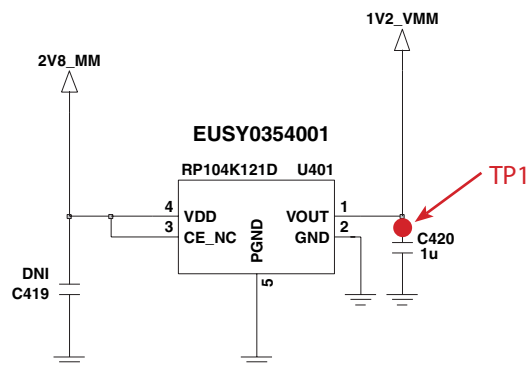


Figure 4.7

LCD Trouble

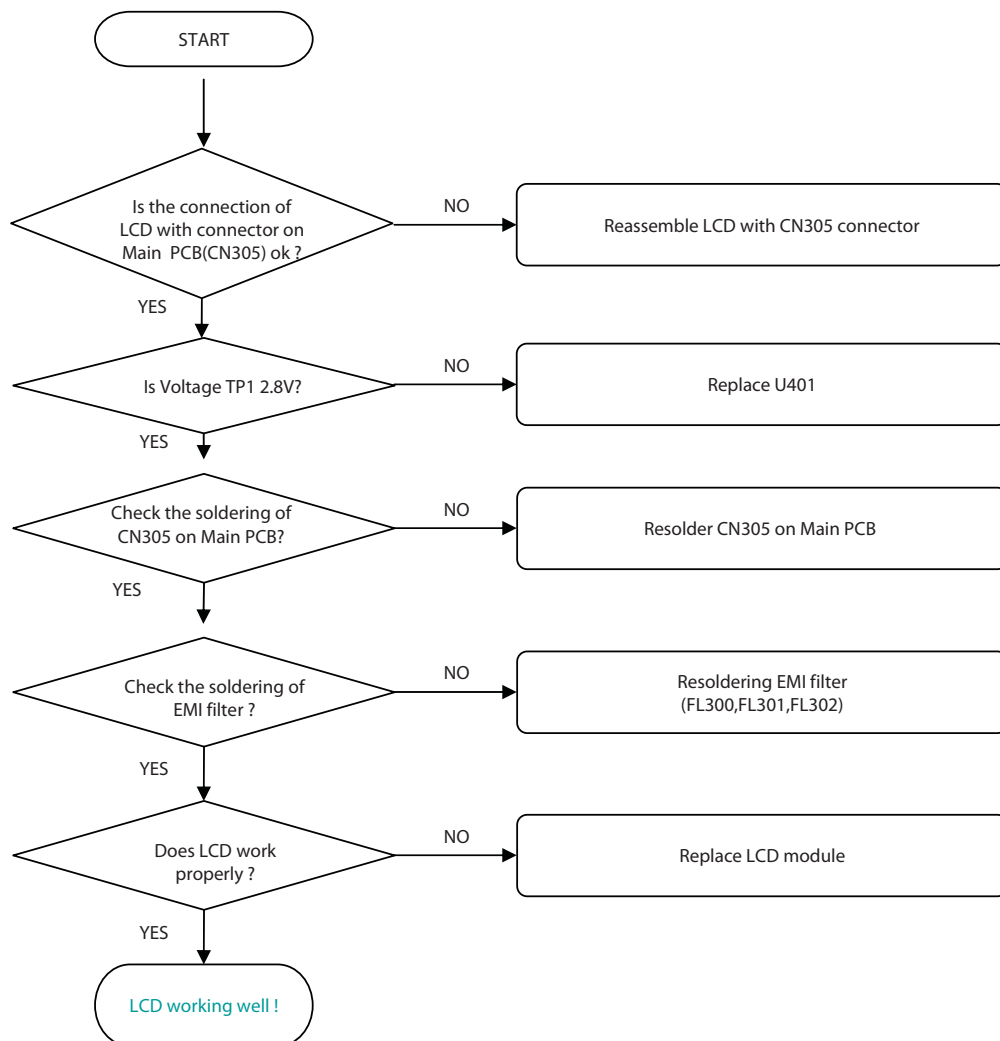


MM_1.2V LDO



4. TROUBLE SHOOTING

CHECKING FLOW



4.9 Camera Trouble

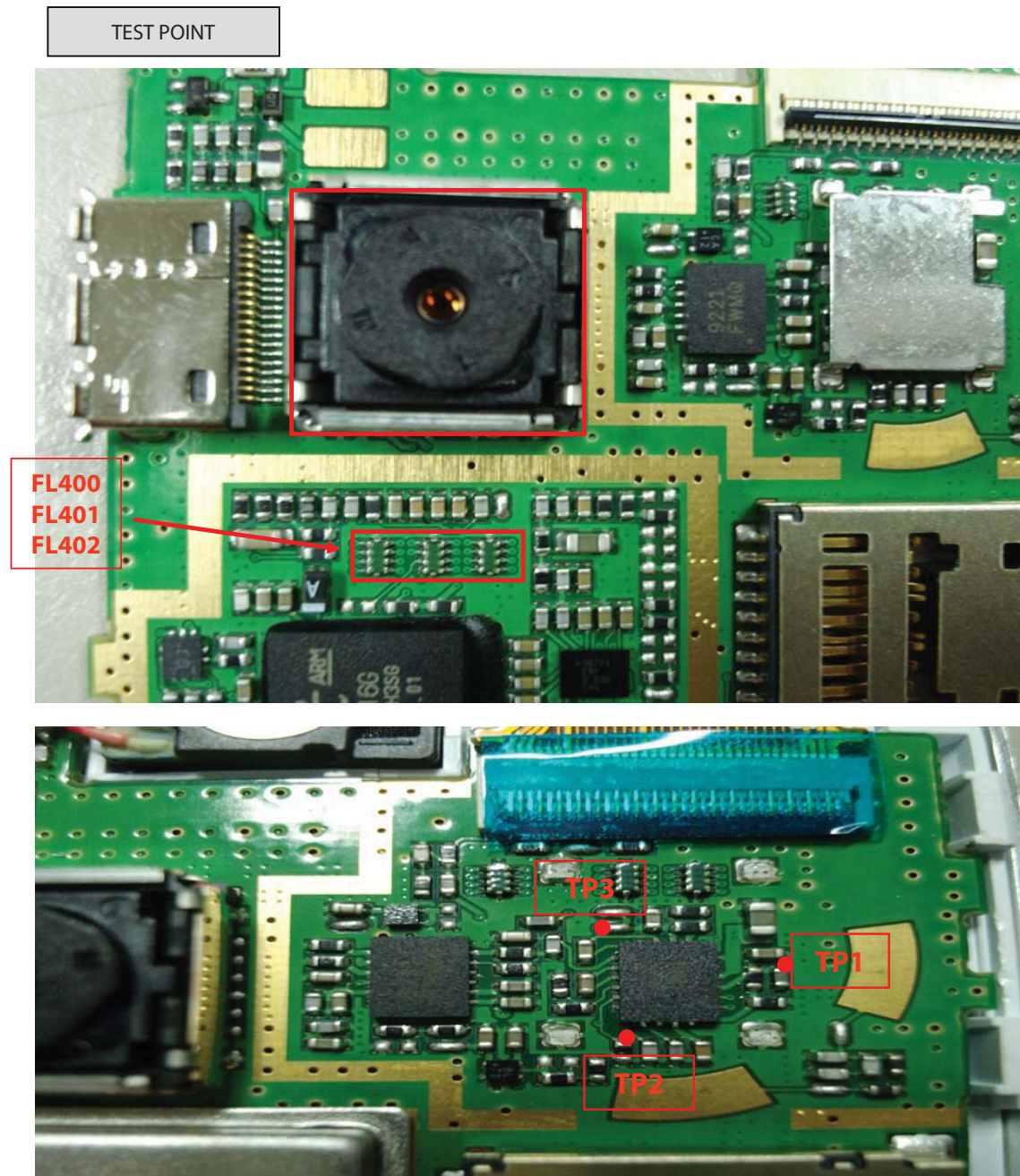
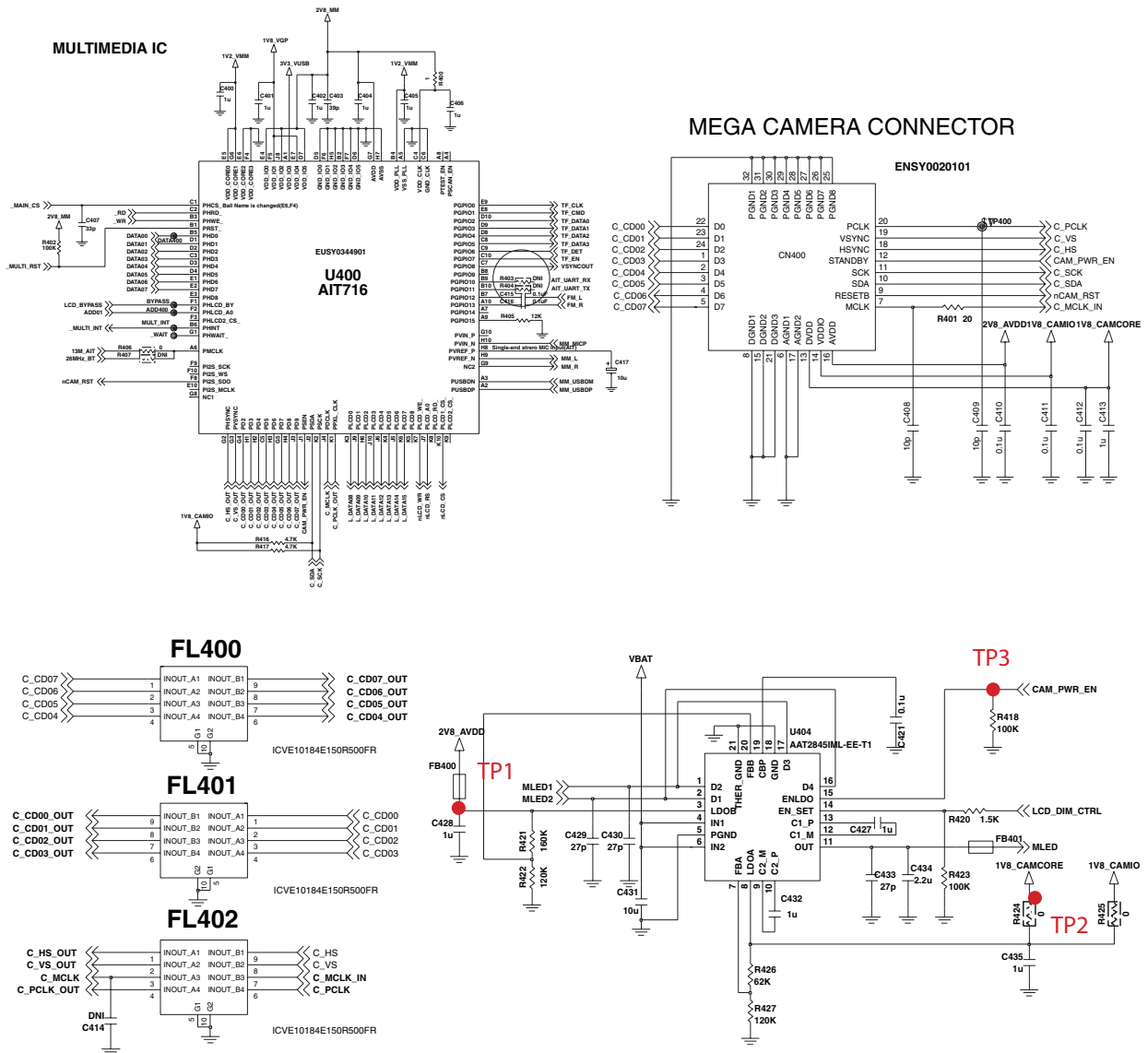


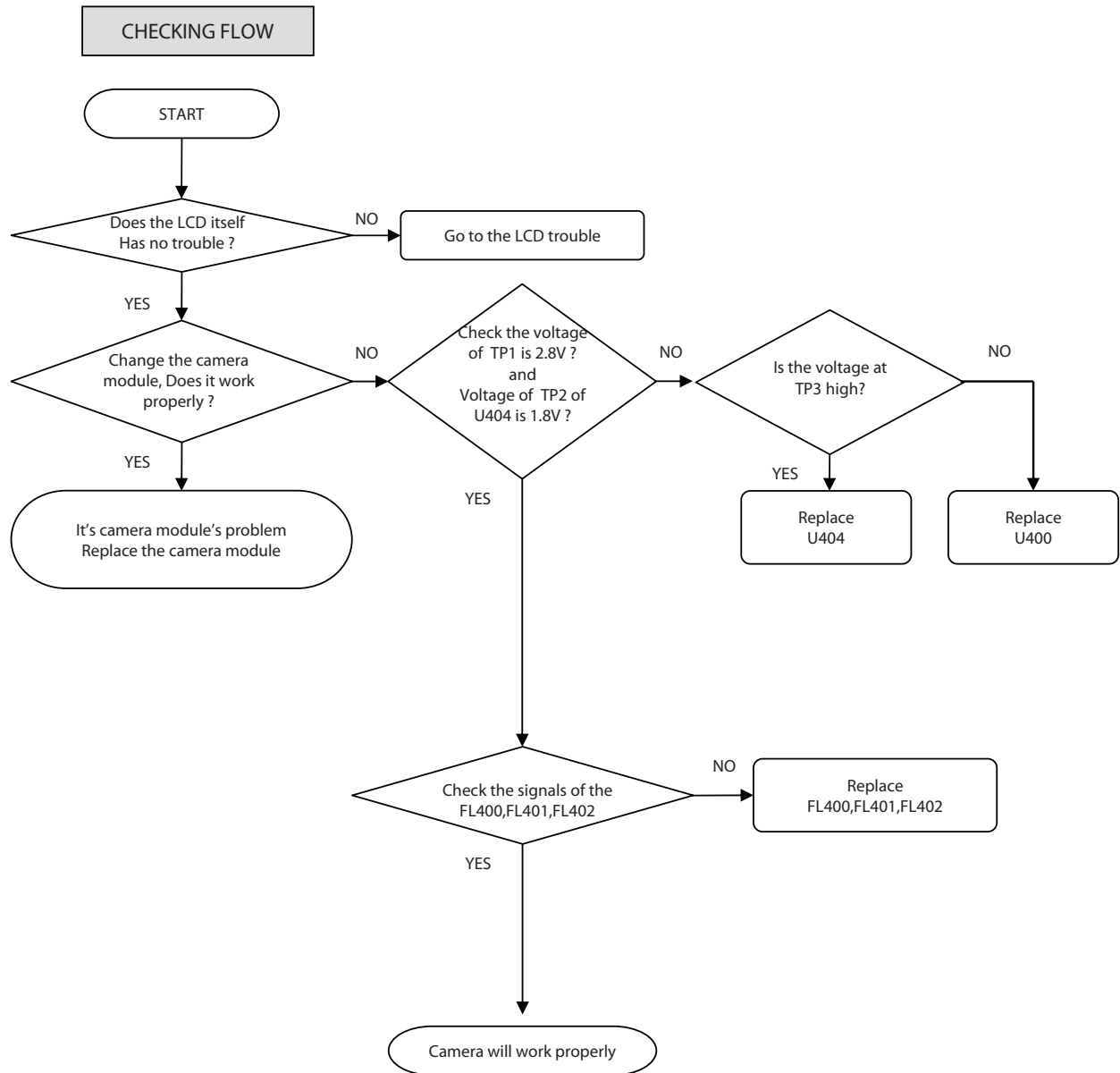
Figure 4.8

4. TROUBLE SHOOTING

Camera Trouble

CIRCUIT





4. TROUBLE SHOOTING

4.10 Speaker Trouble

TEST POINT

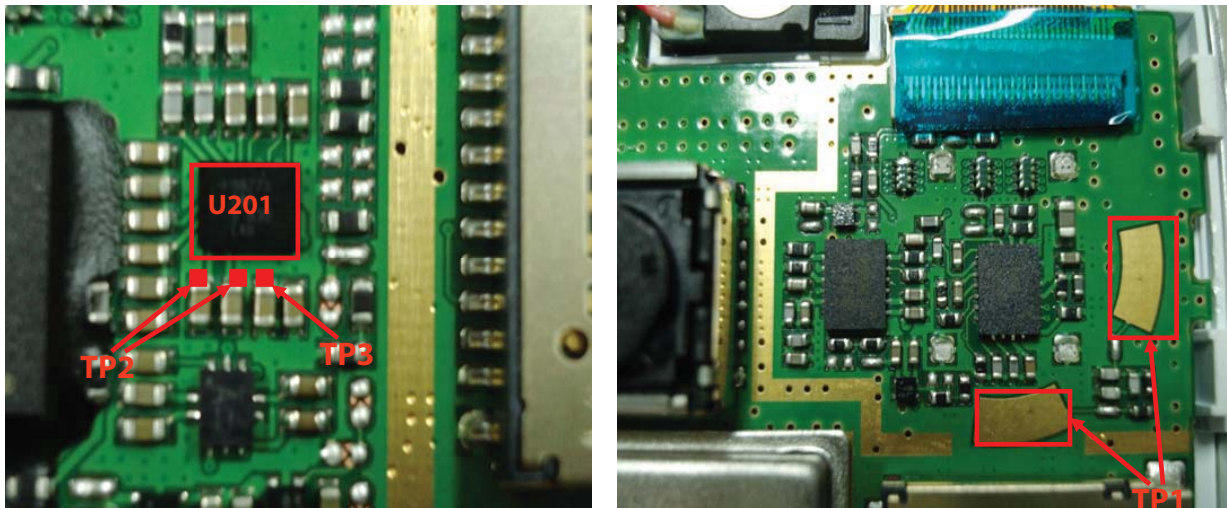
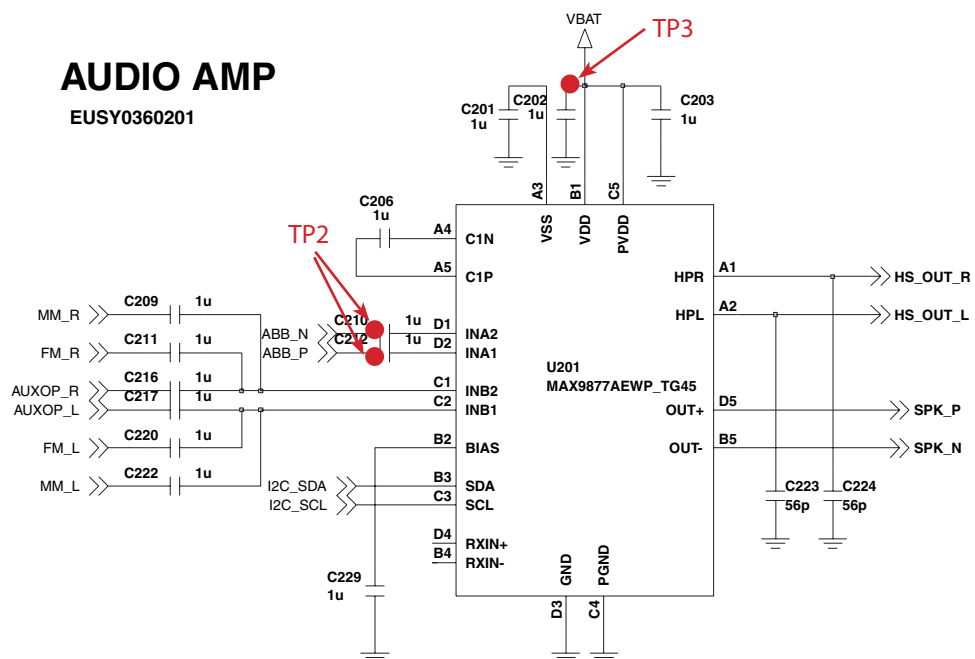
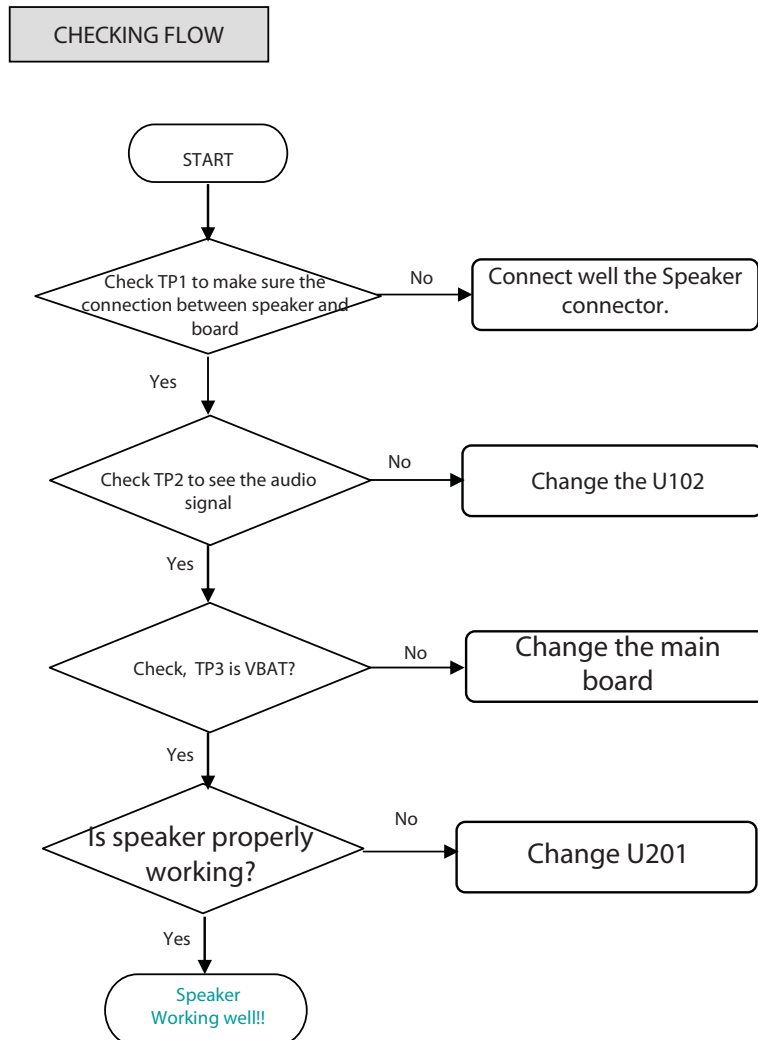


Figure 4.9

CIRCUIT





4. TROUBLE SHOOTING

4.11 SIM Card Interface Trouble

TEST POINT

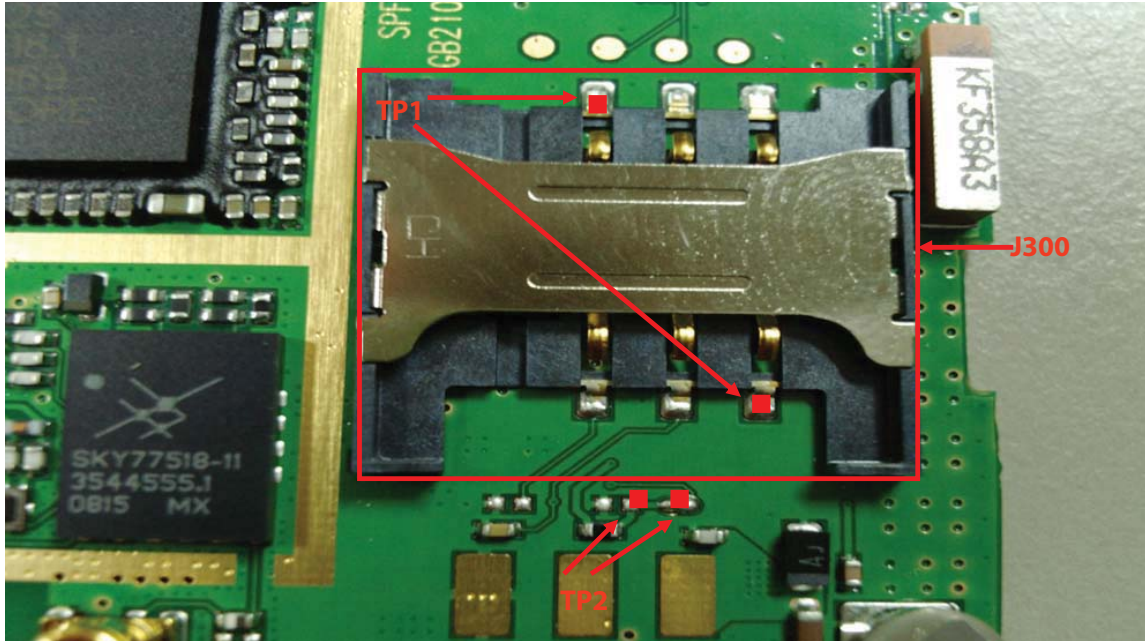
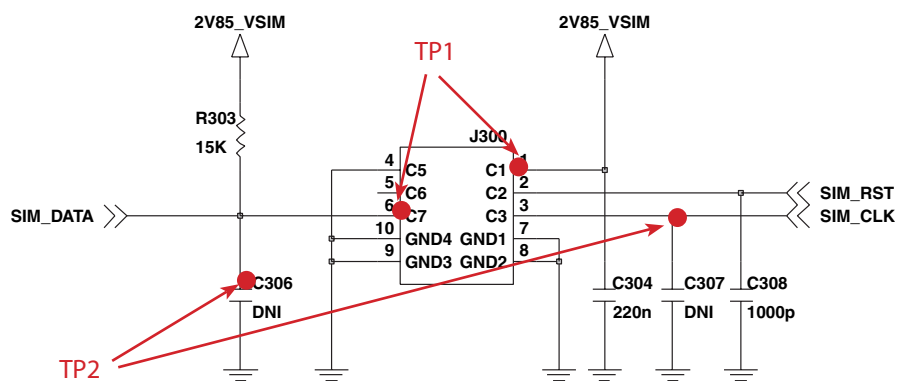
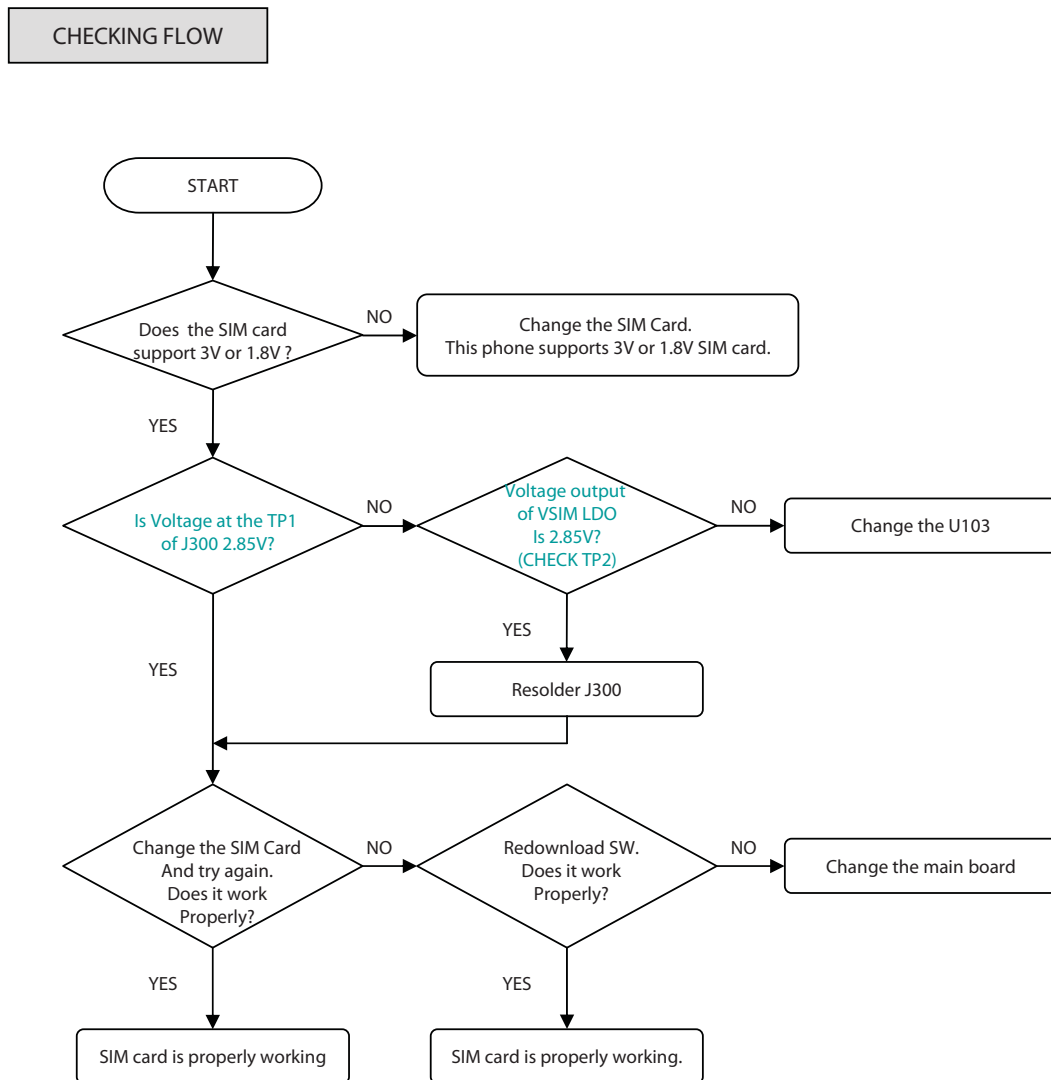


Figure 4.10

CIRCUIT

SIM_CONNECTOR





4. TROUBLE SHOOTING

4.12 Earphone Trouble

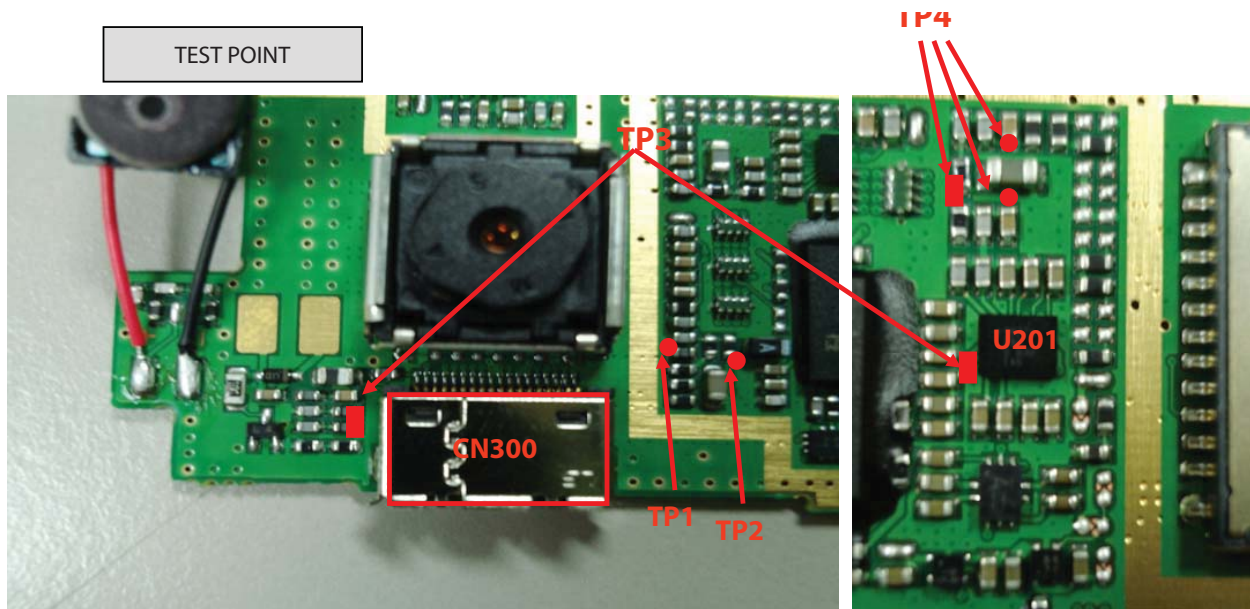
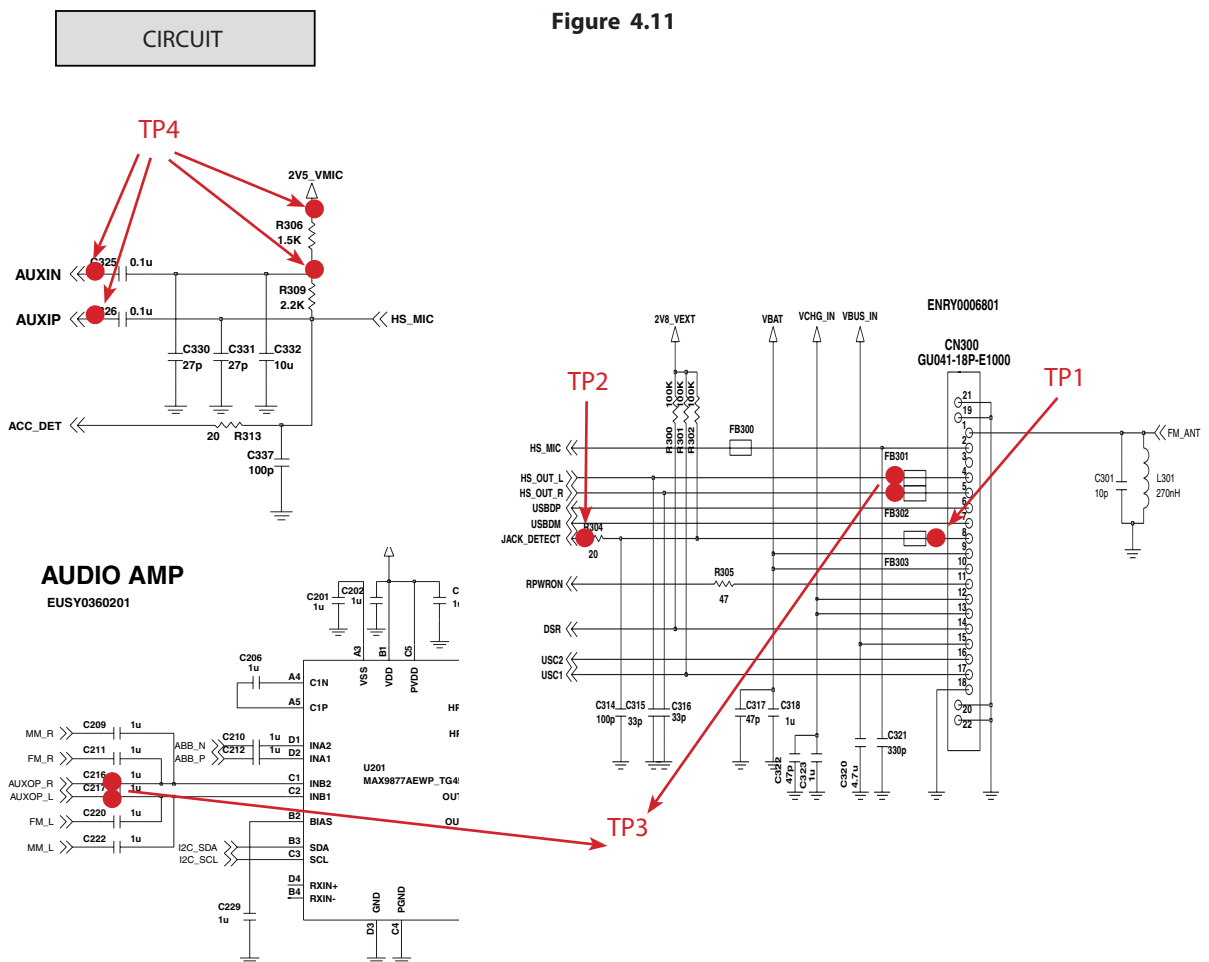
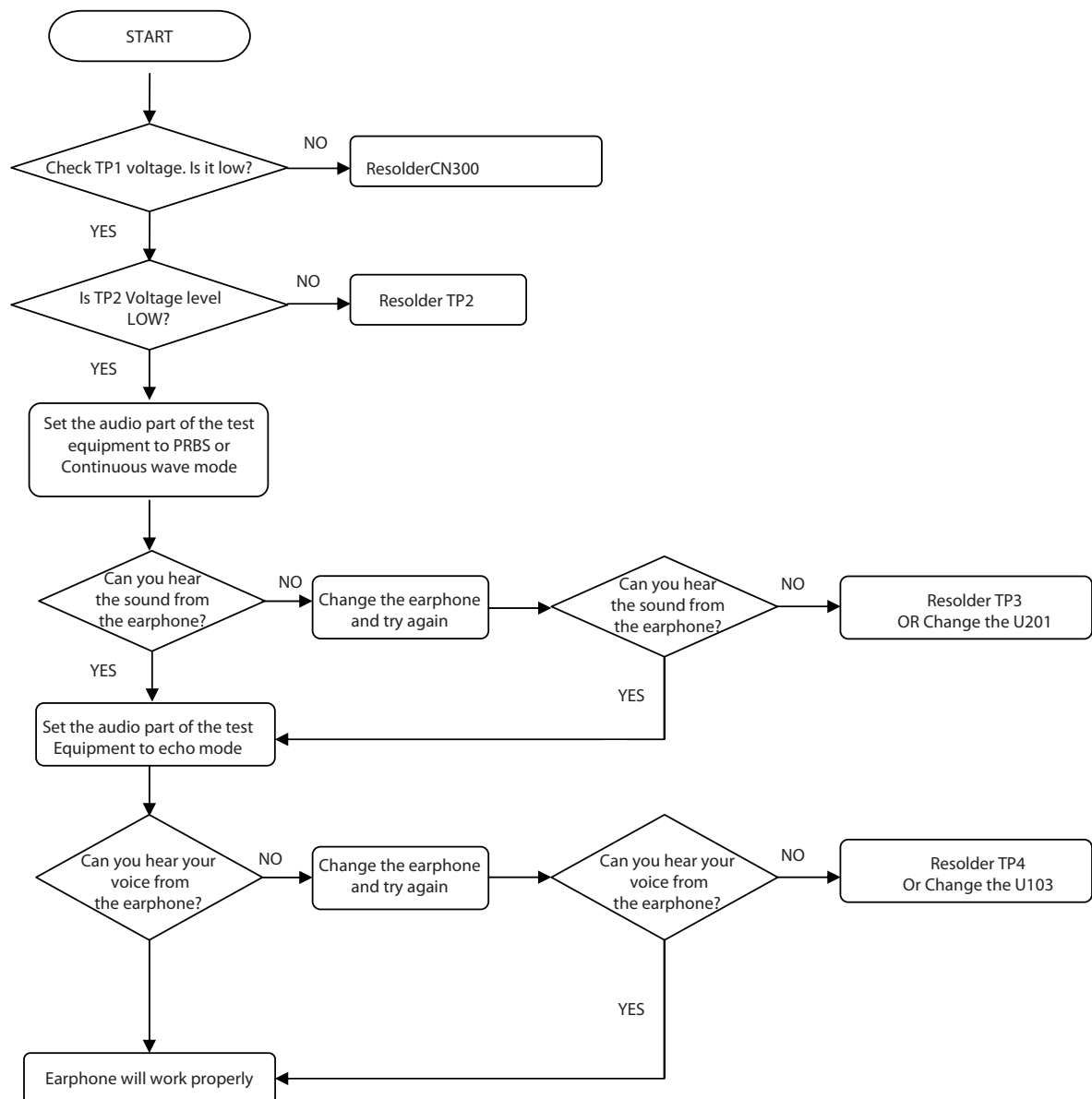


Figure 4.11



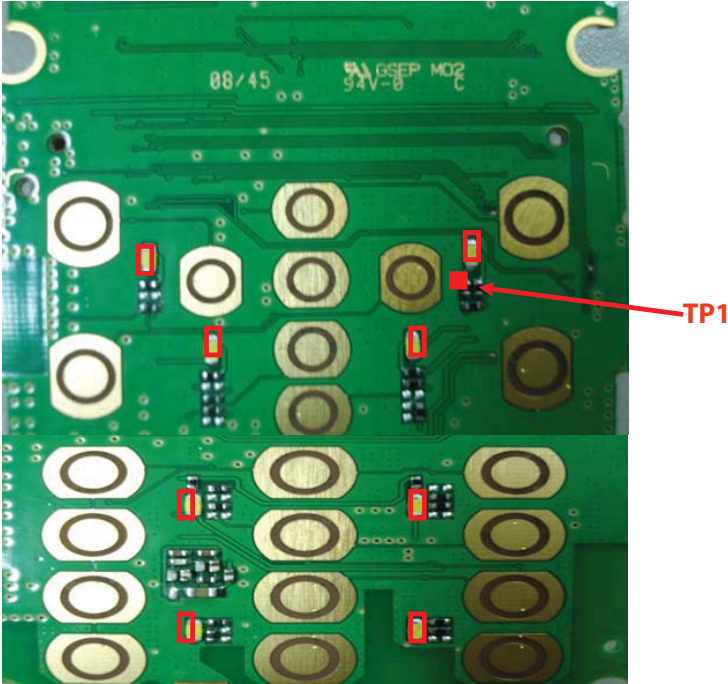
CHECKING FLOW



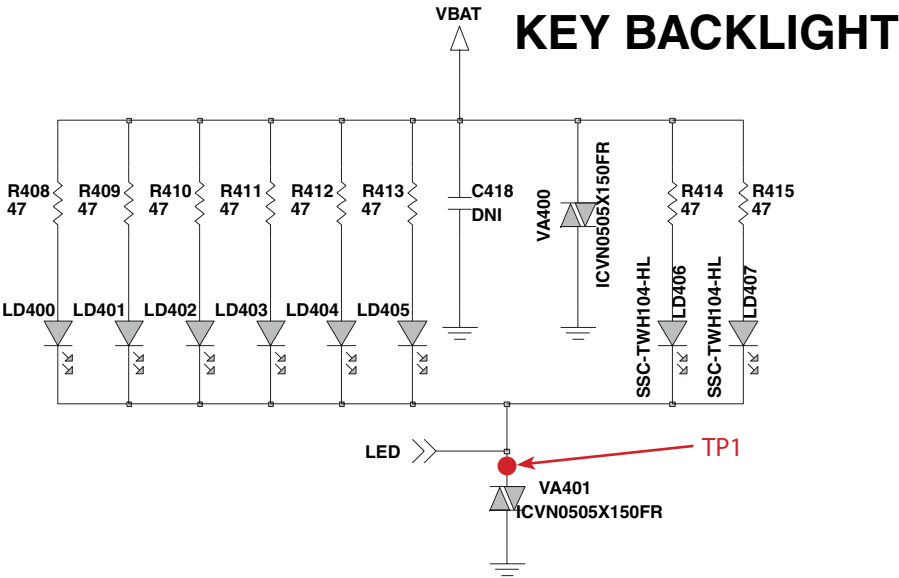
4. TROUBLE SHOOTING

4.13 KEY backlight Trouble

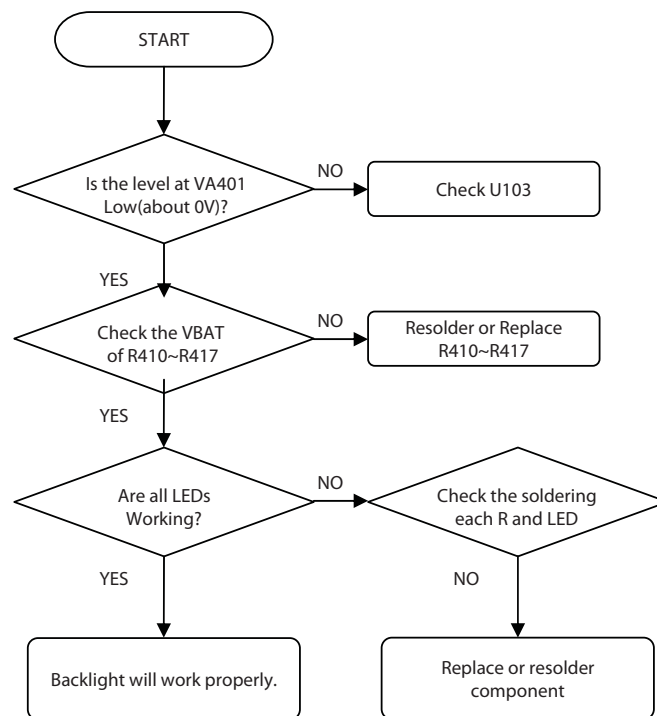
TEST POINT



CIRCUIT



CHECKING FLOW



4. TROUBLE SHOOTING

4.14 Receiver Trouble

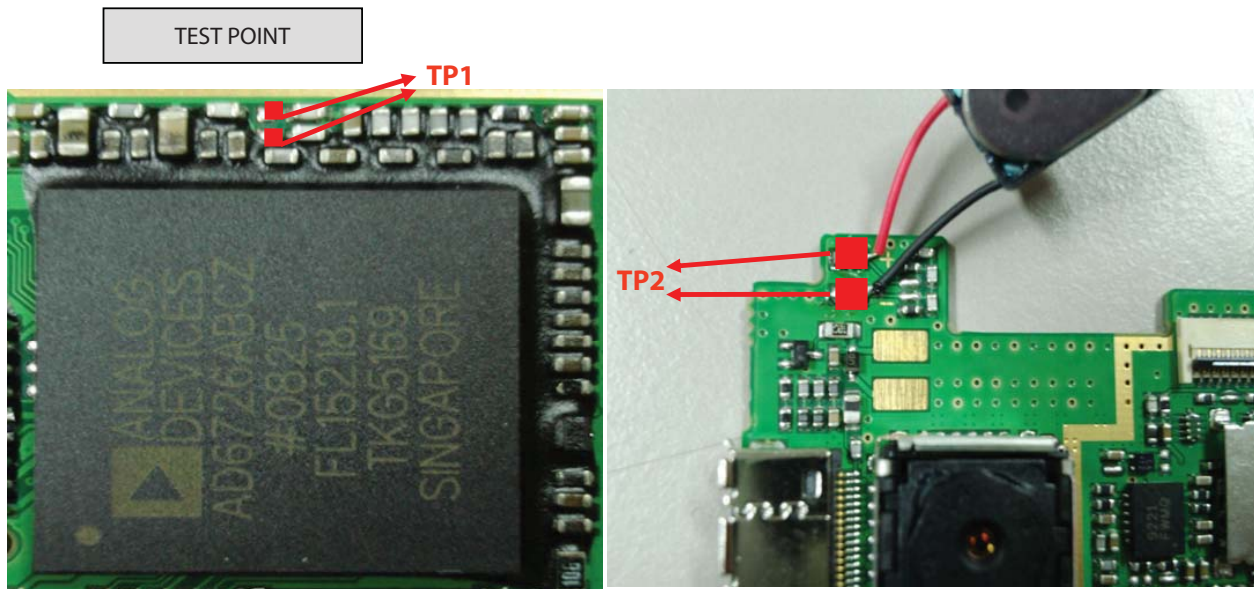
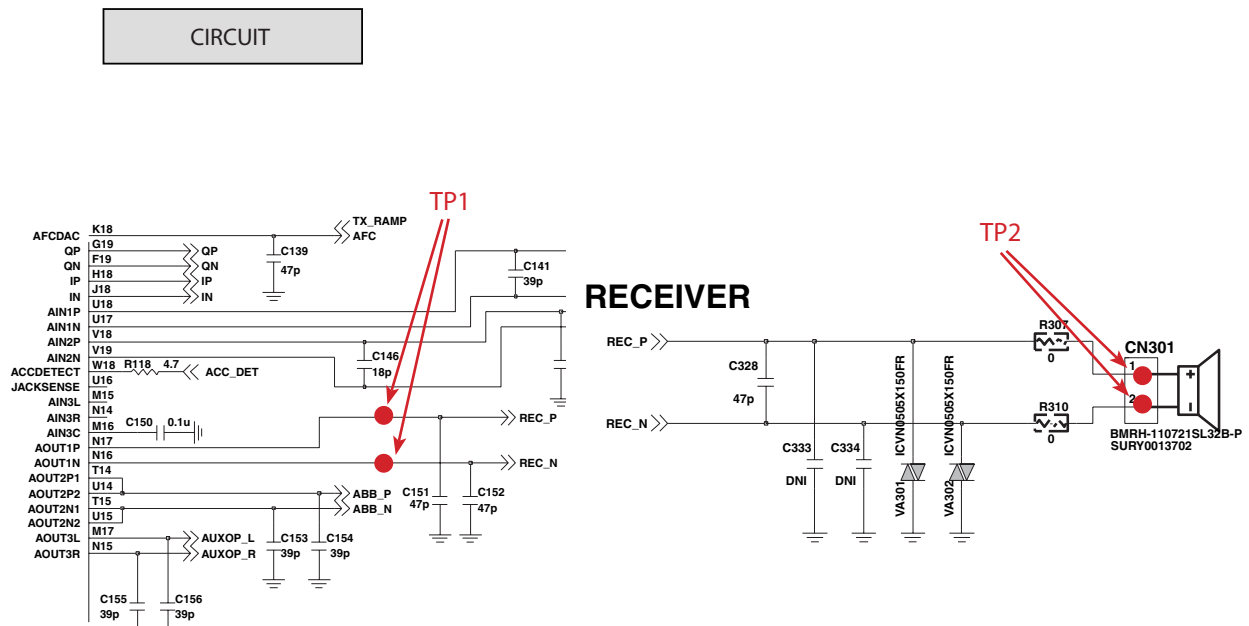


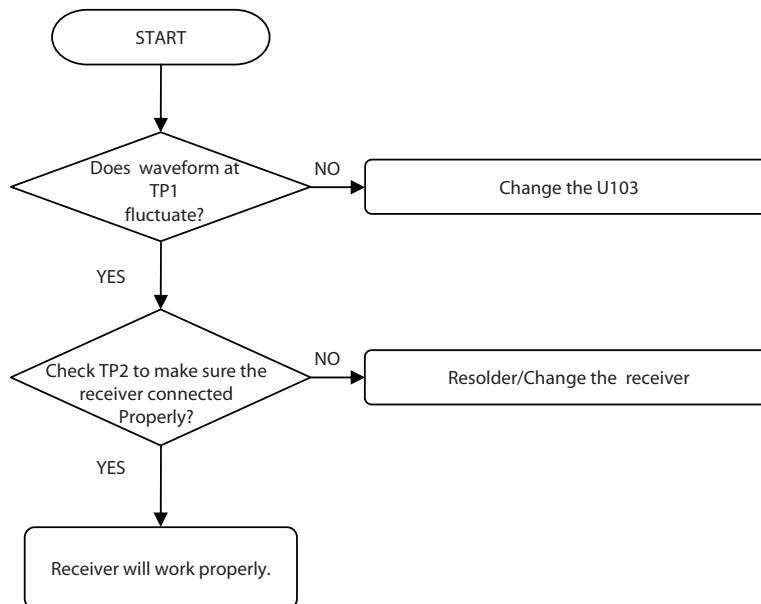
Figure 4.13



CHECKING FLOW

SETTING : After initialize Agilent 8960, Test GSM900, DCS mode

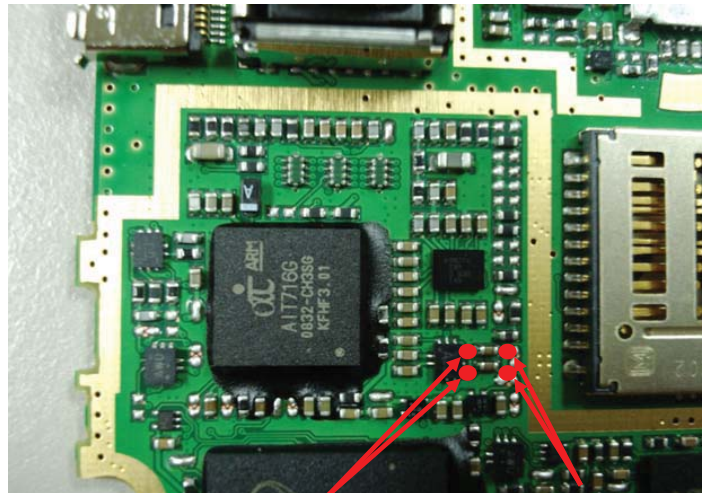
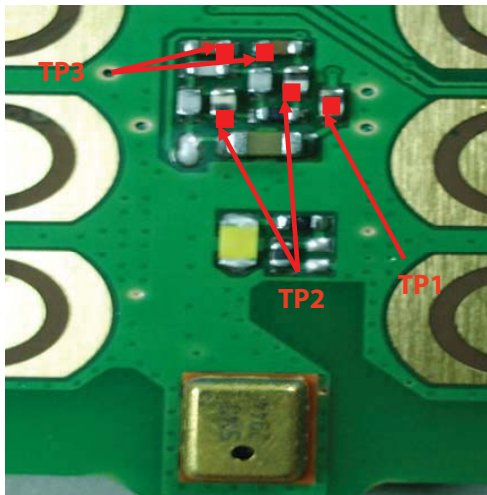
Set the property of audio as PRBS or continuous wave. Set the receiving volume of mobile as Max.



4. TROUBLE SHOOTING

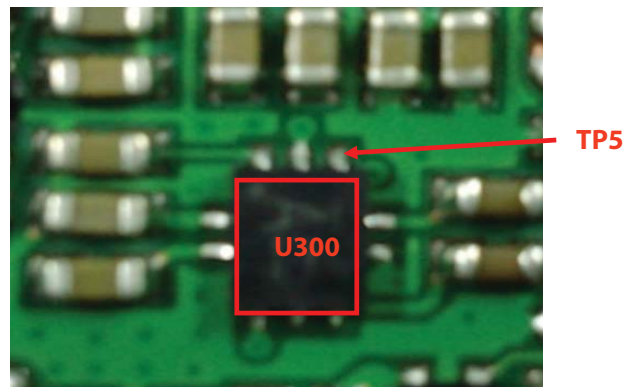
4.15 Microphone Trouble

TEST POINT



TP4

TP6

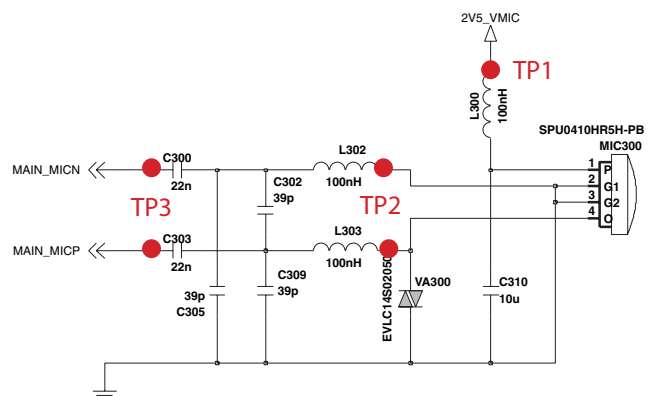
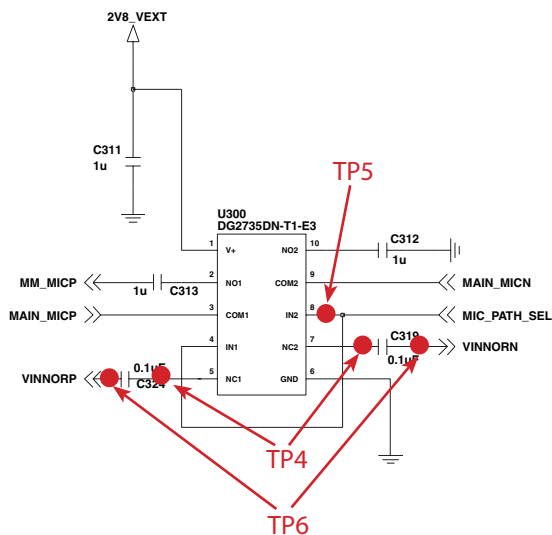


TP5

U300

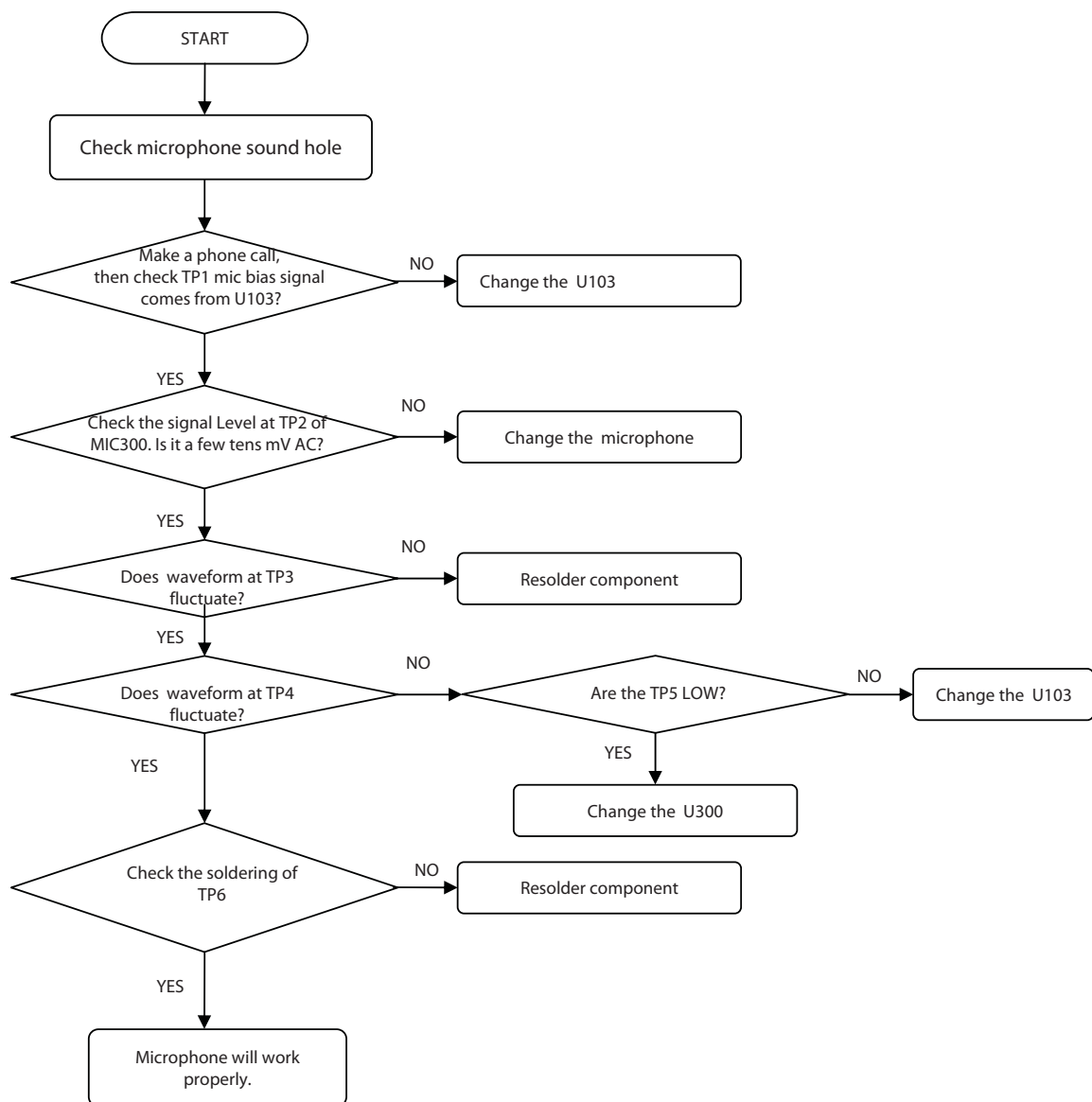
CIRCUIT

MICROPHONE PATH SELECTION



CHECKING FLOW

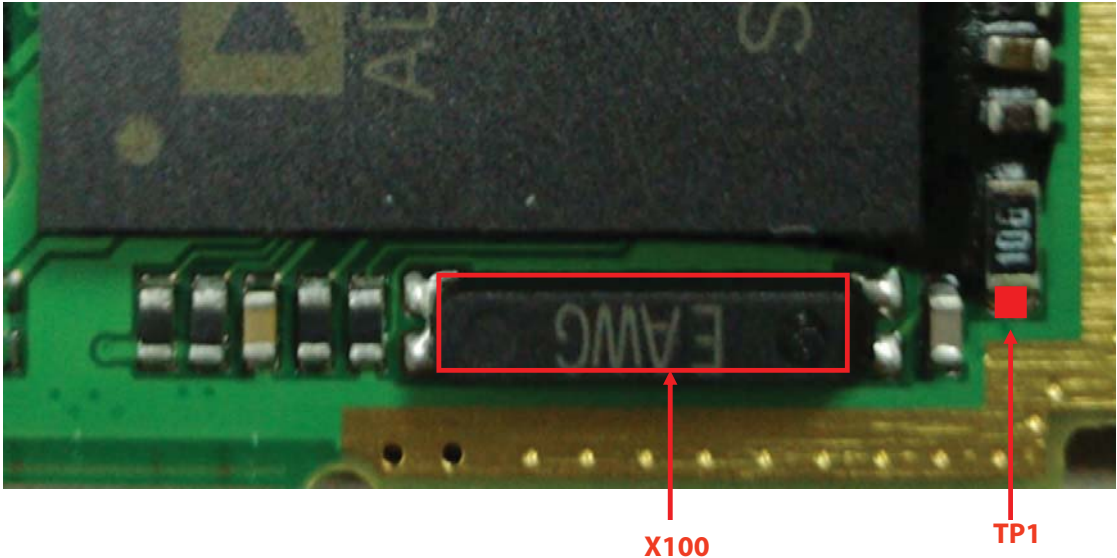
SETTING : After initialize Agilent 8960, Test GSM900, DCS mode



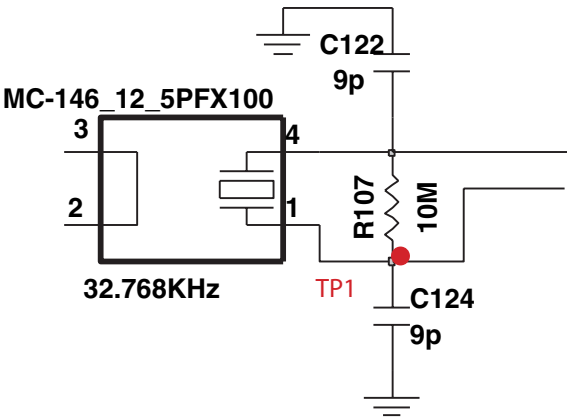
4. TROUBLE SHOOTING

4.16 RTC Trouble

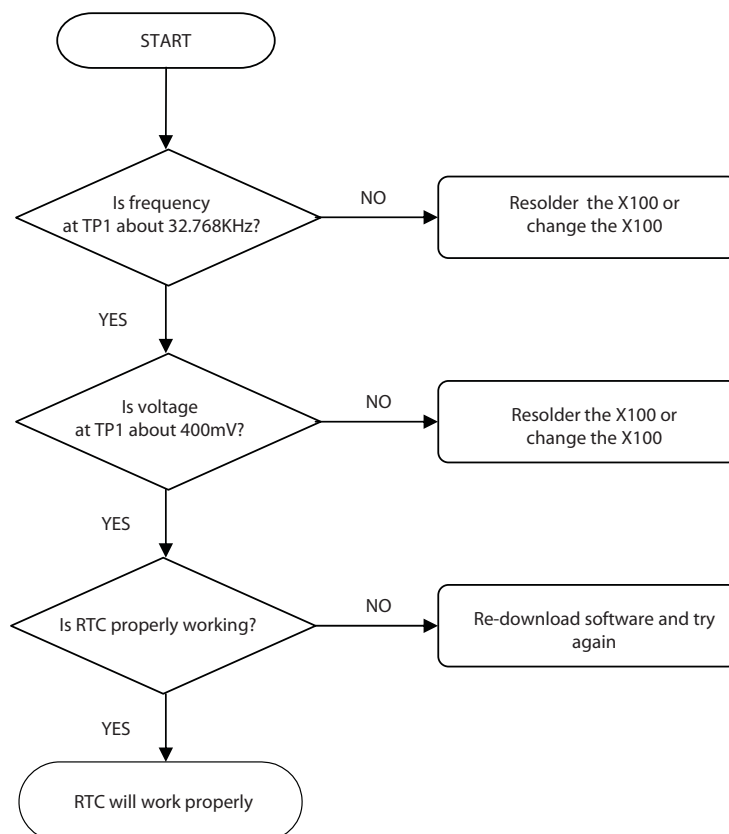
TEST POINT



CIRCUIT



CHECKING FLOW

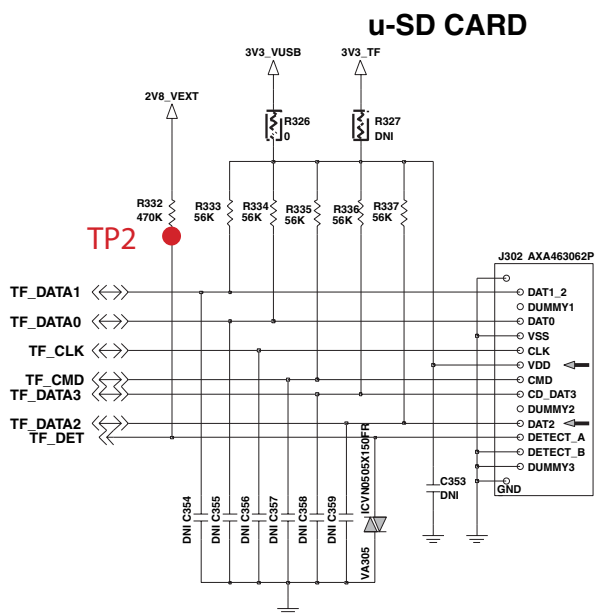
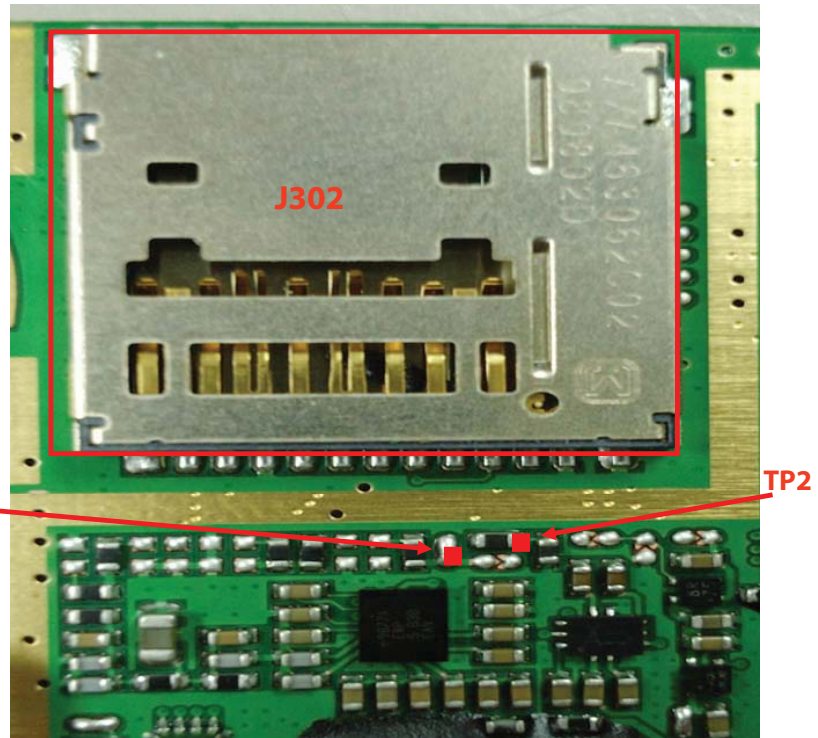


4. TROUBLE SHOOTING

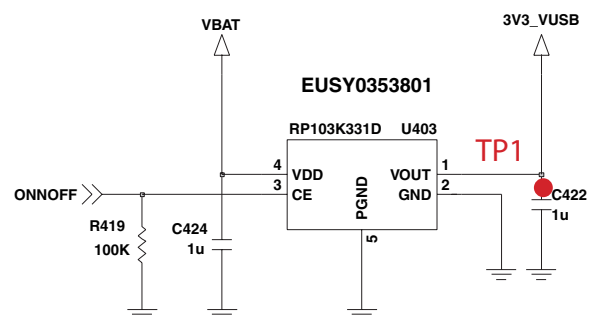
4.17 Micro SD Trouble

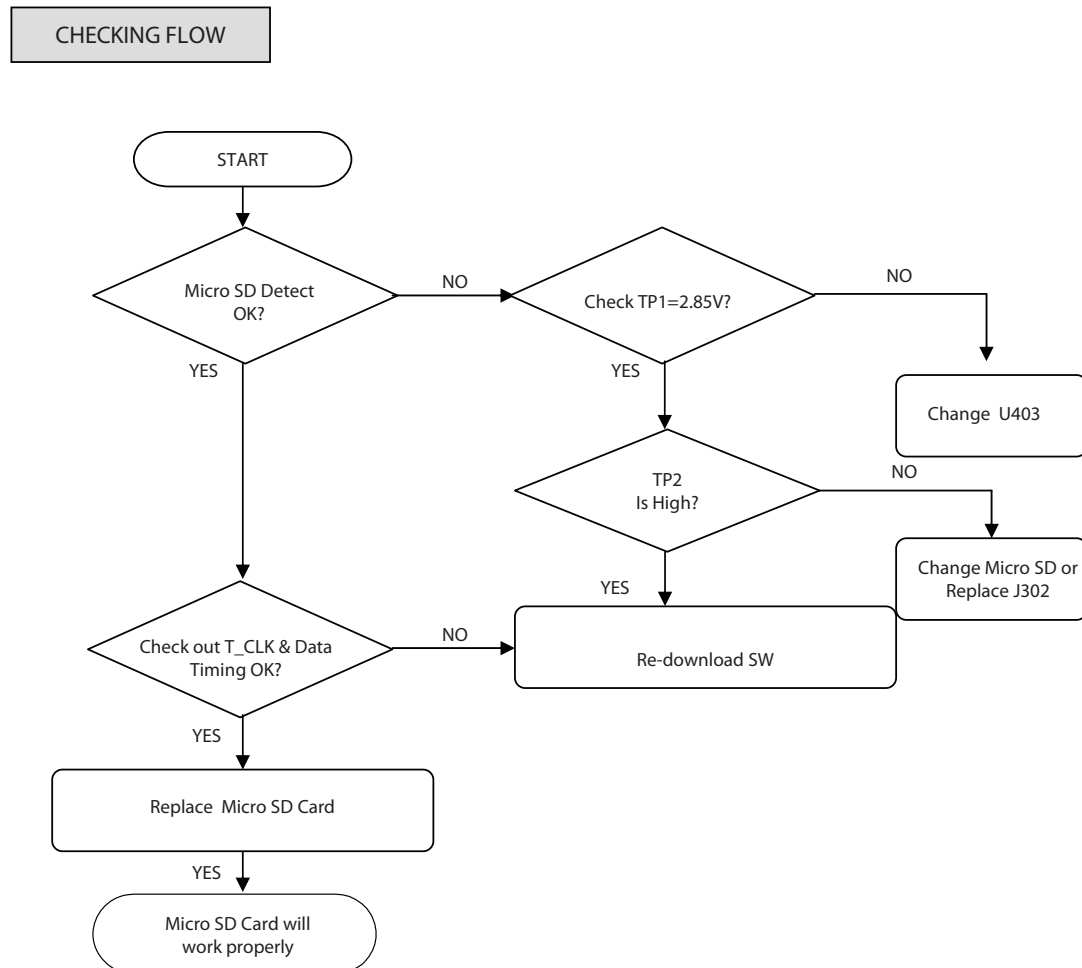
TEST POINT

CIRCUIT



MM_USB LDO





5. Download

5. Download

5.1 Download

A. Download Setup

Figure 5.1 describes Download setup

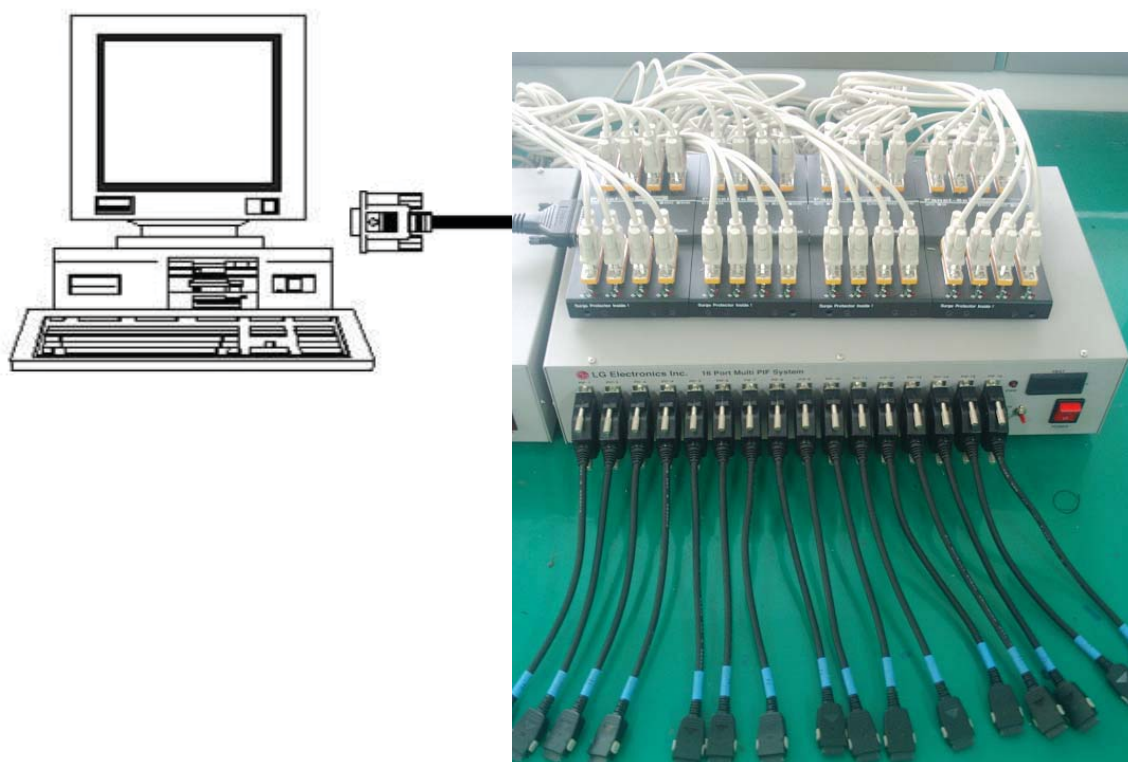
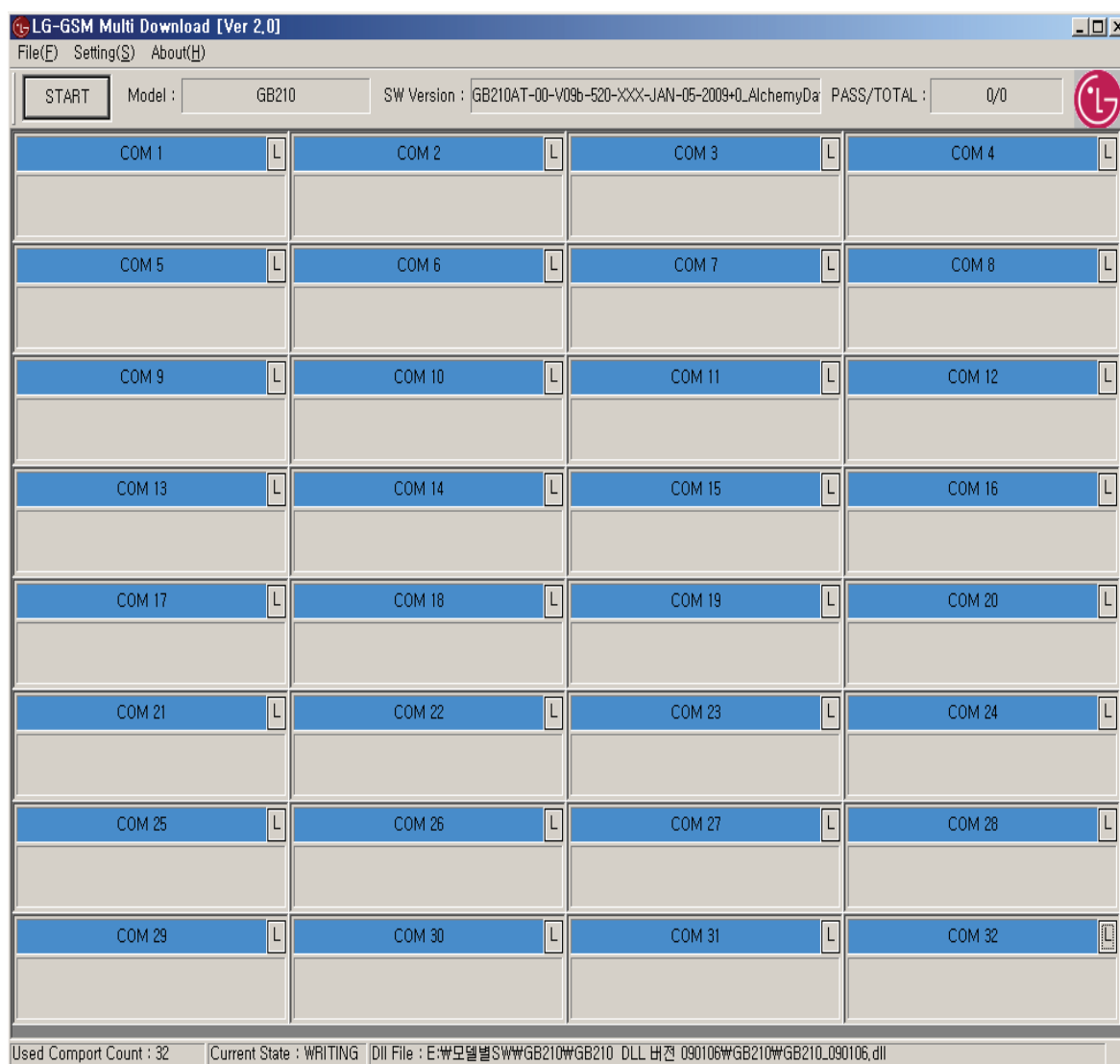


Figure 5.1 Download Setup

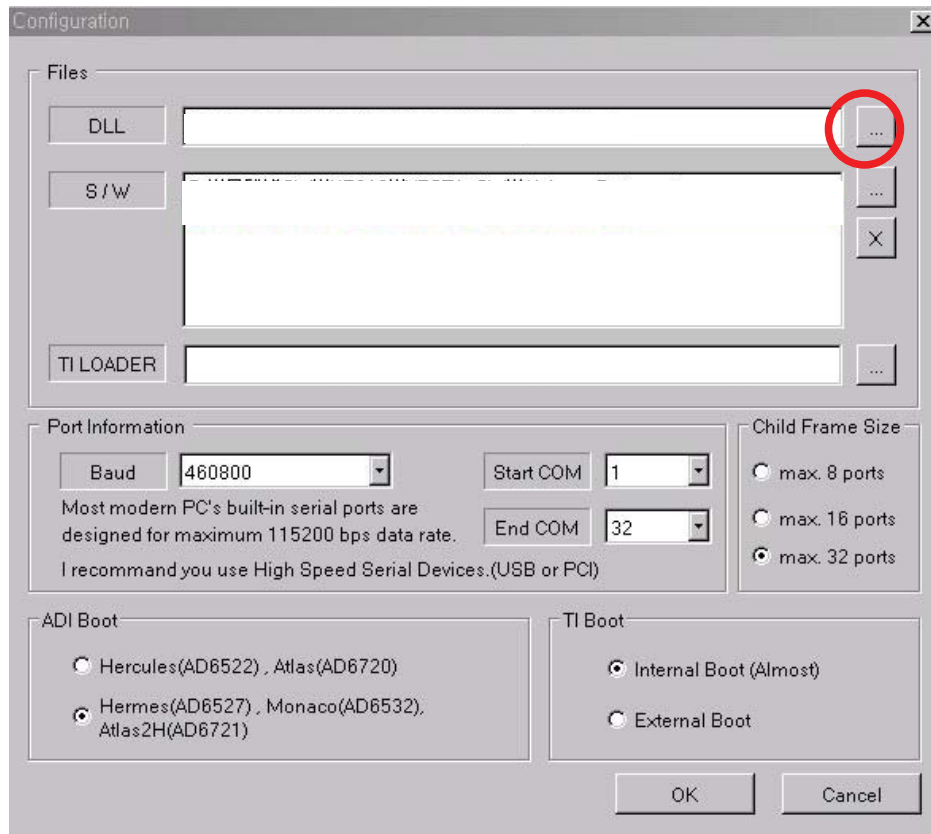
B. Multi Download Procedure

1. Run GSM Multi Download program and select Setting

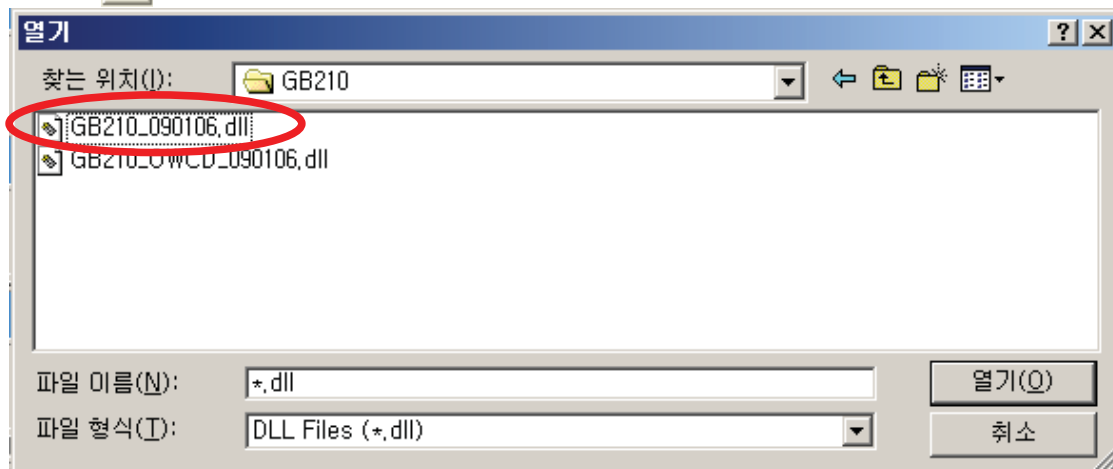



5. Download

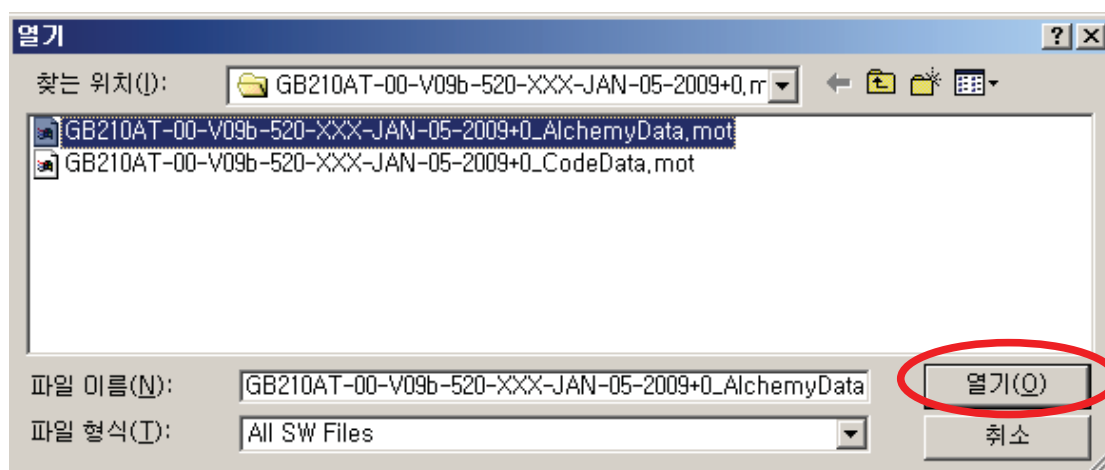
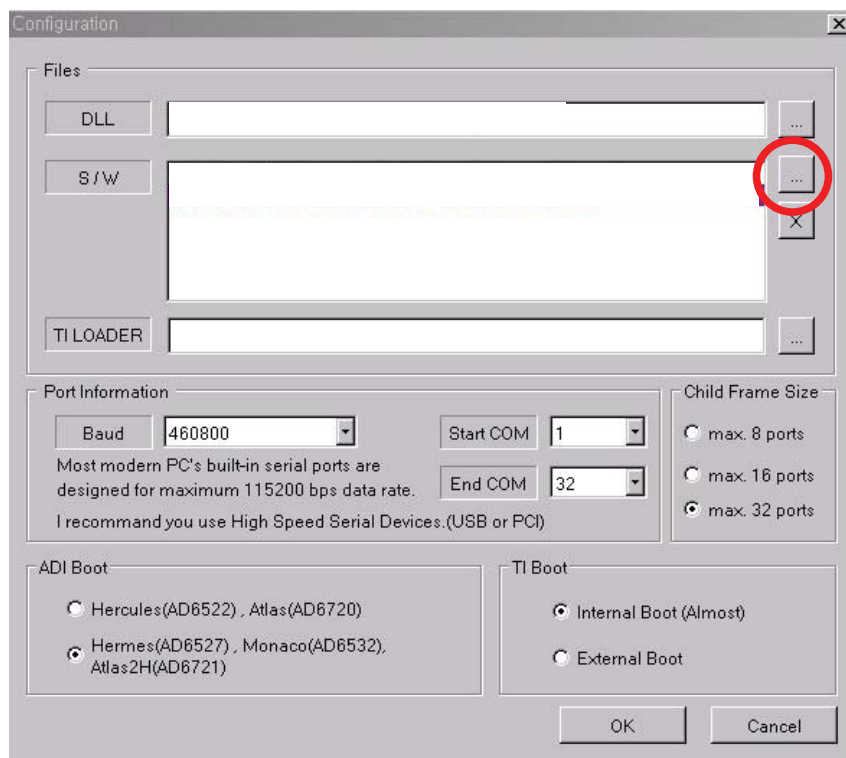
2. Select Configuration from the menu and you may see this window



3. Press  key to select DLL file and press Open

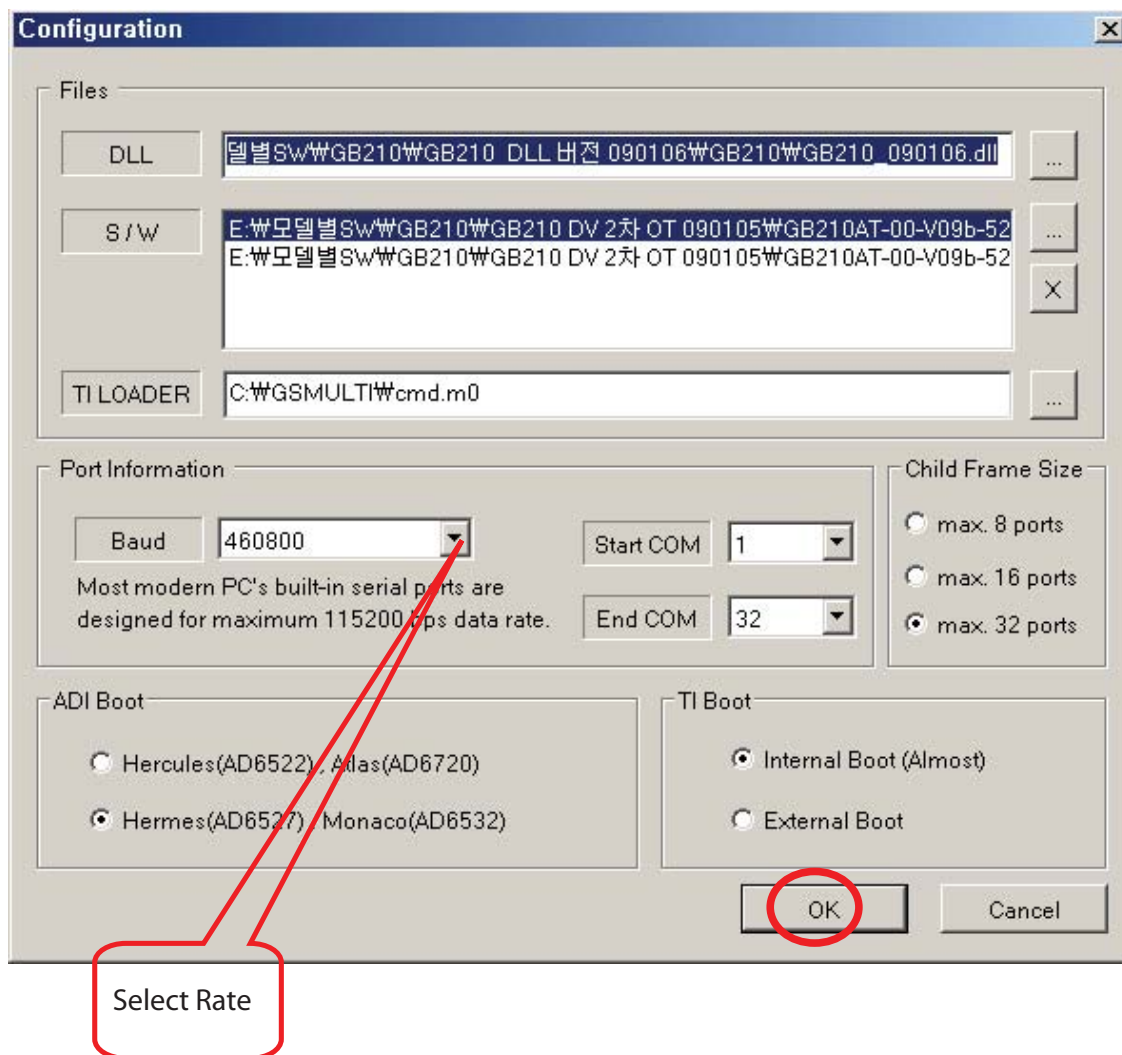


4. Press  key to select the mot files
5. Select AlchemyData.mot and press open
6. Repeat step 4-5 to select CodeData.mot



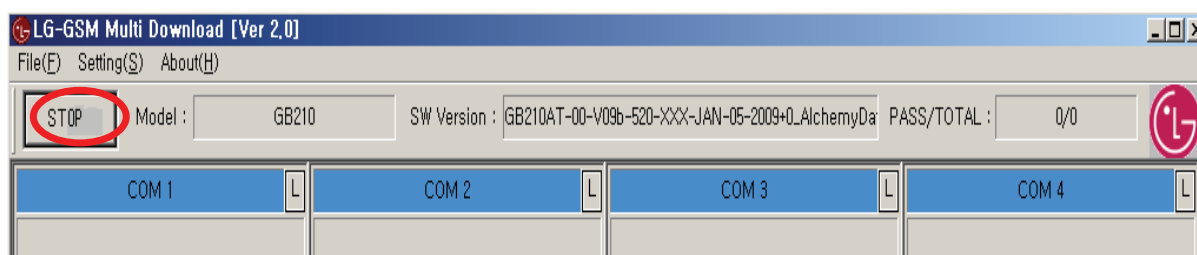
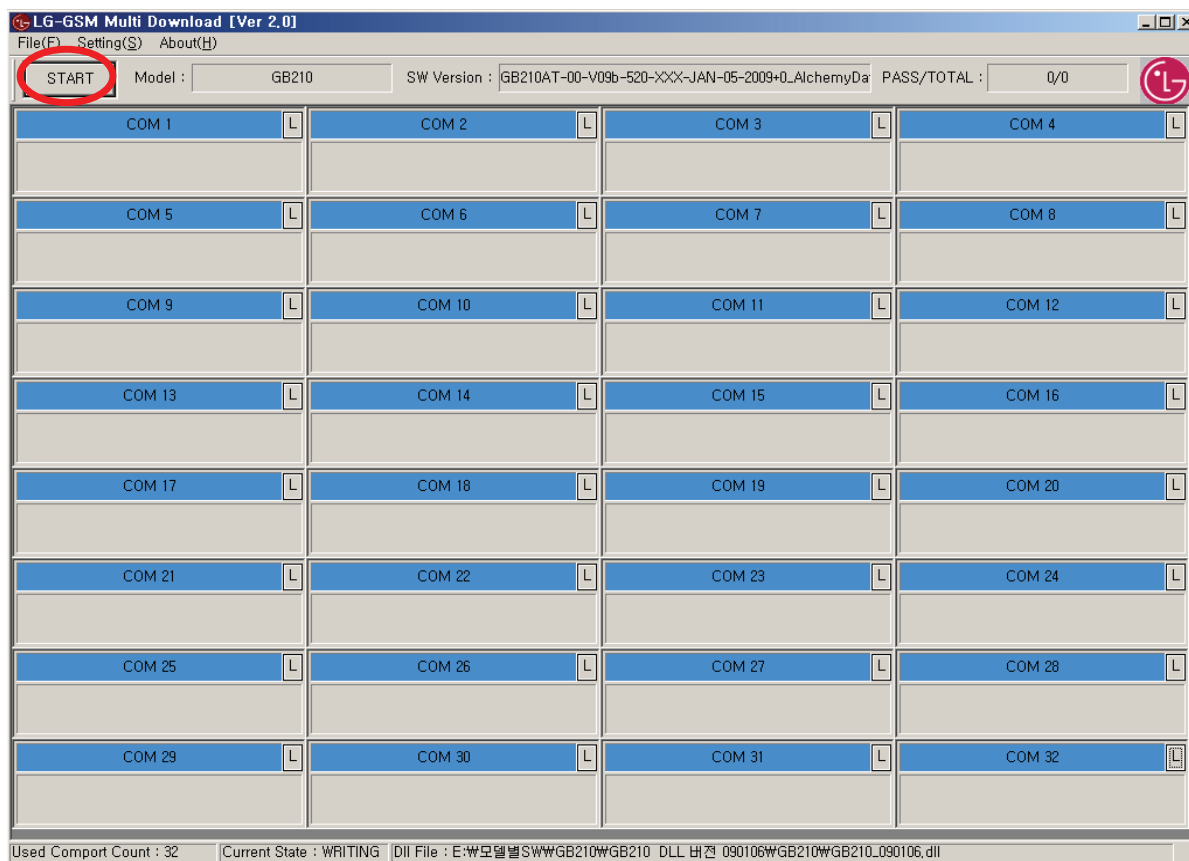
5. Download

7. Check if the ADI option is set to Hermes
8. Press OK to end Configuration



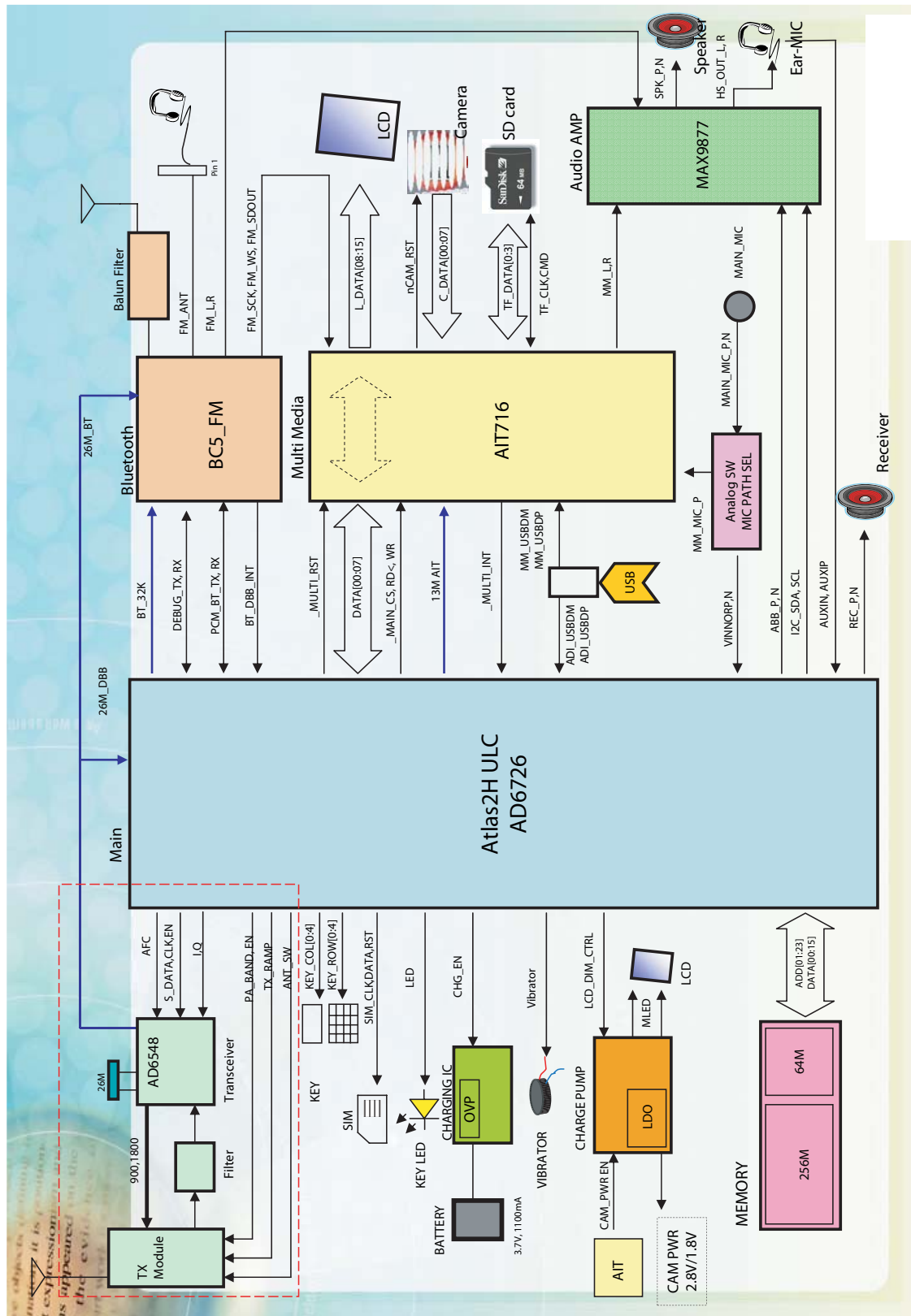
9. Press START to execute download

10. Once downloading is started,
press STOP button to keep from re-downloading after downloading is completed.

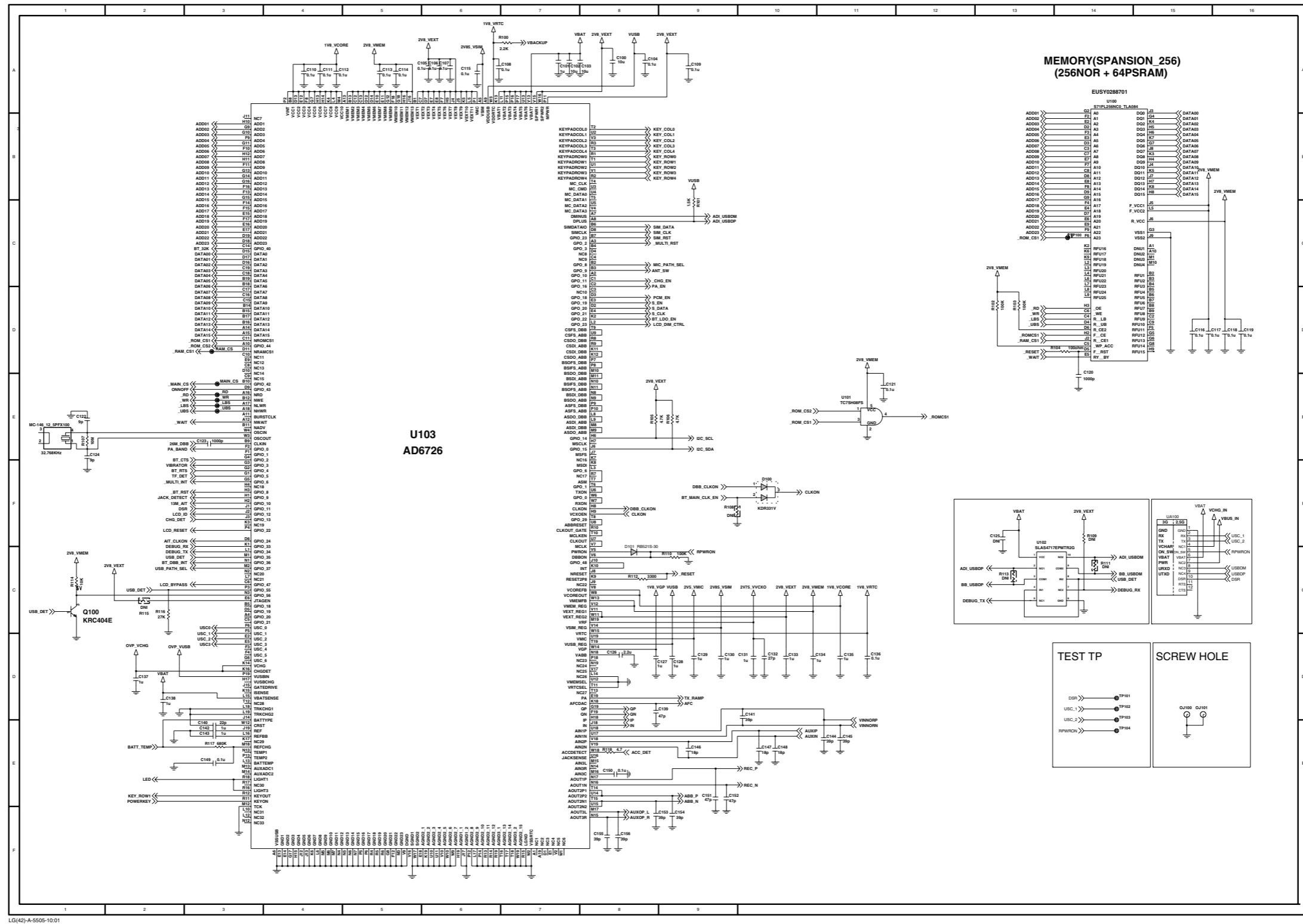


6. BLOCK DIAGRAM

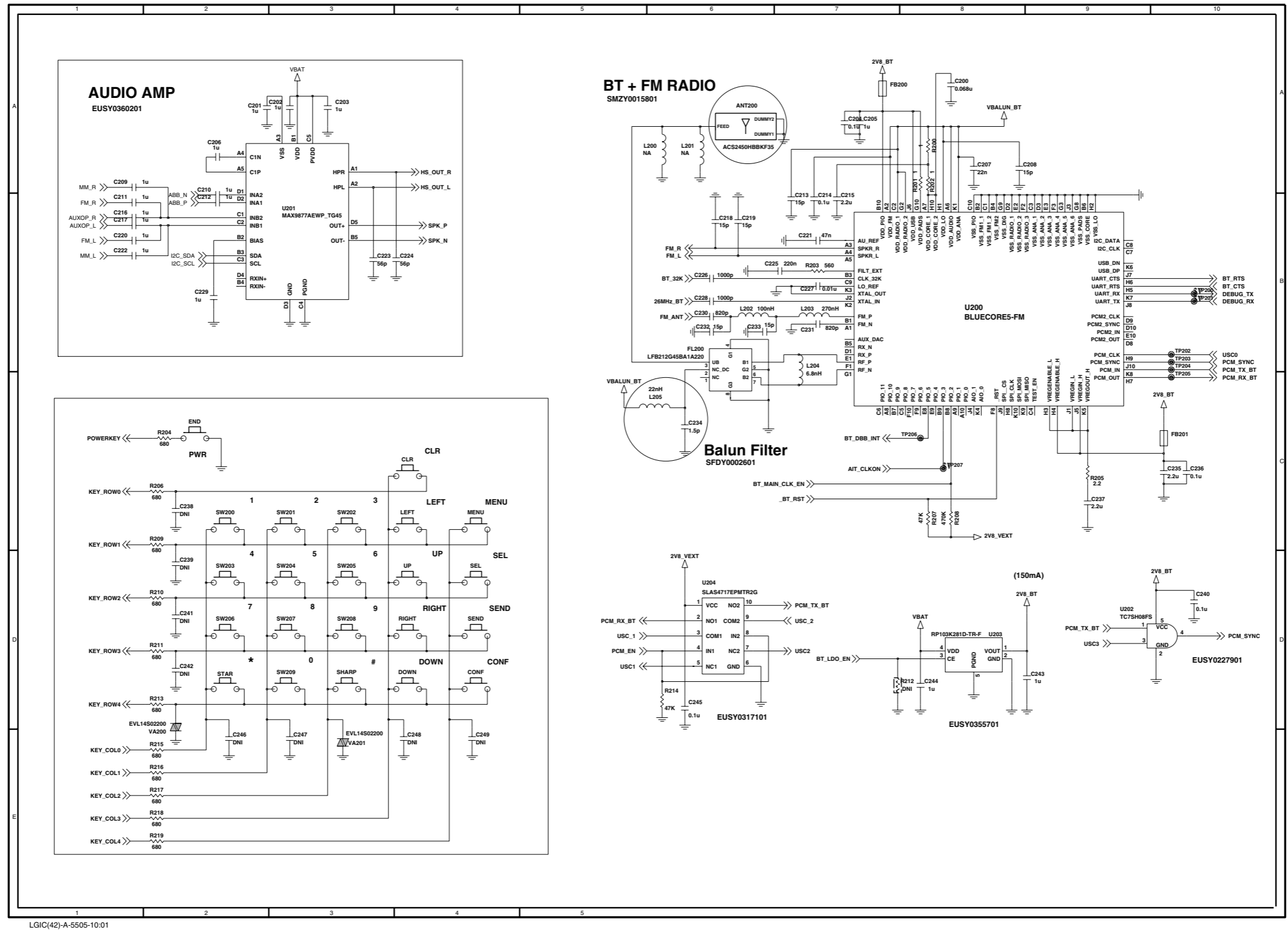
6. BLOCK DIAGRAM



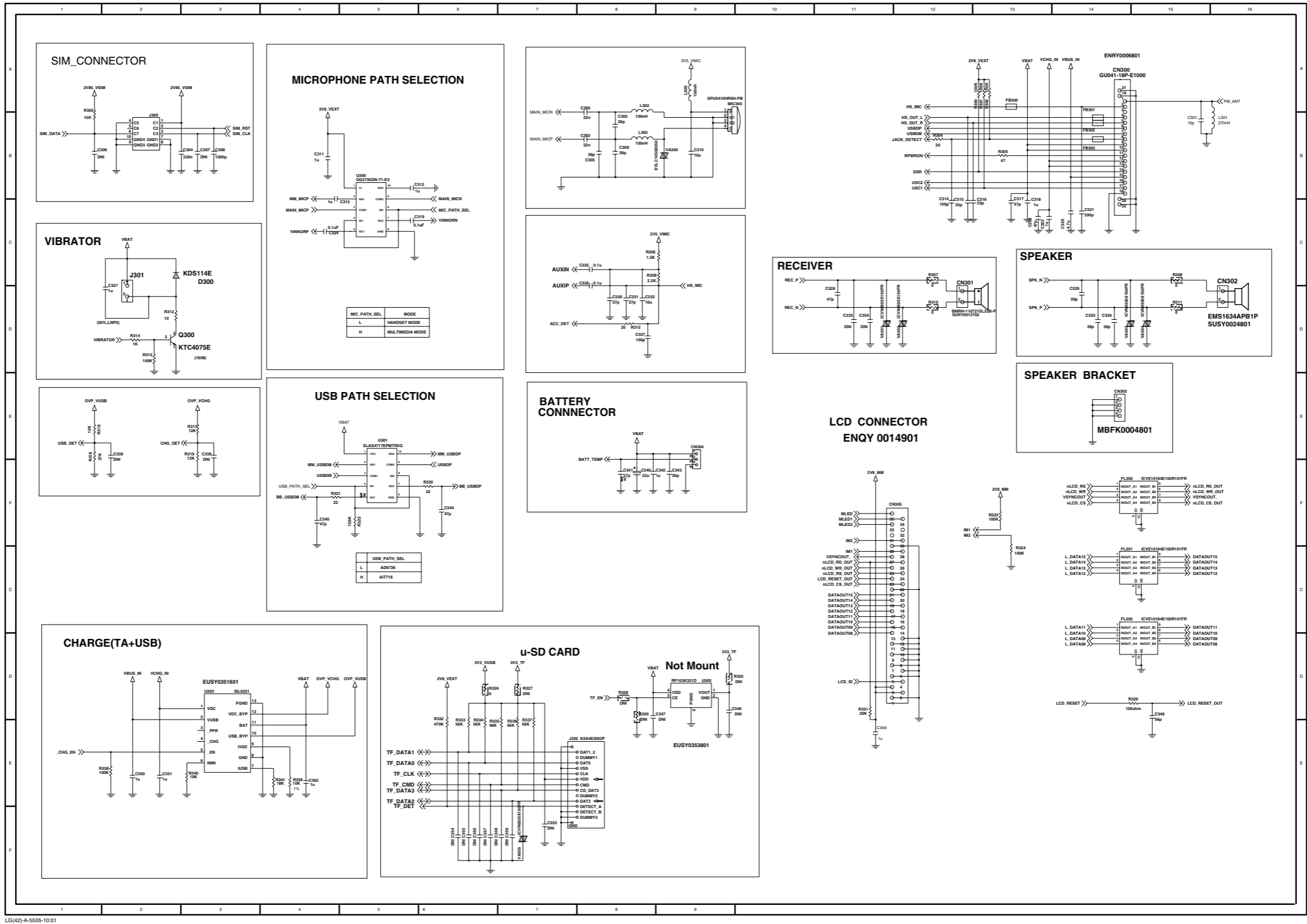
7. CIRCUIT DIAGRAM



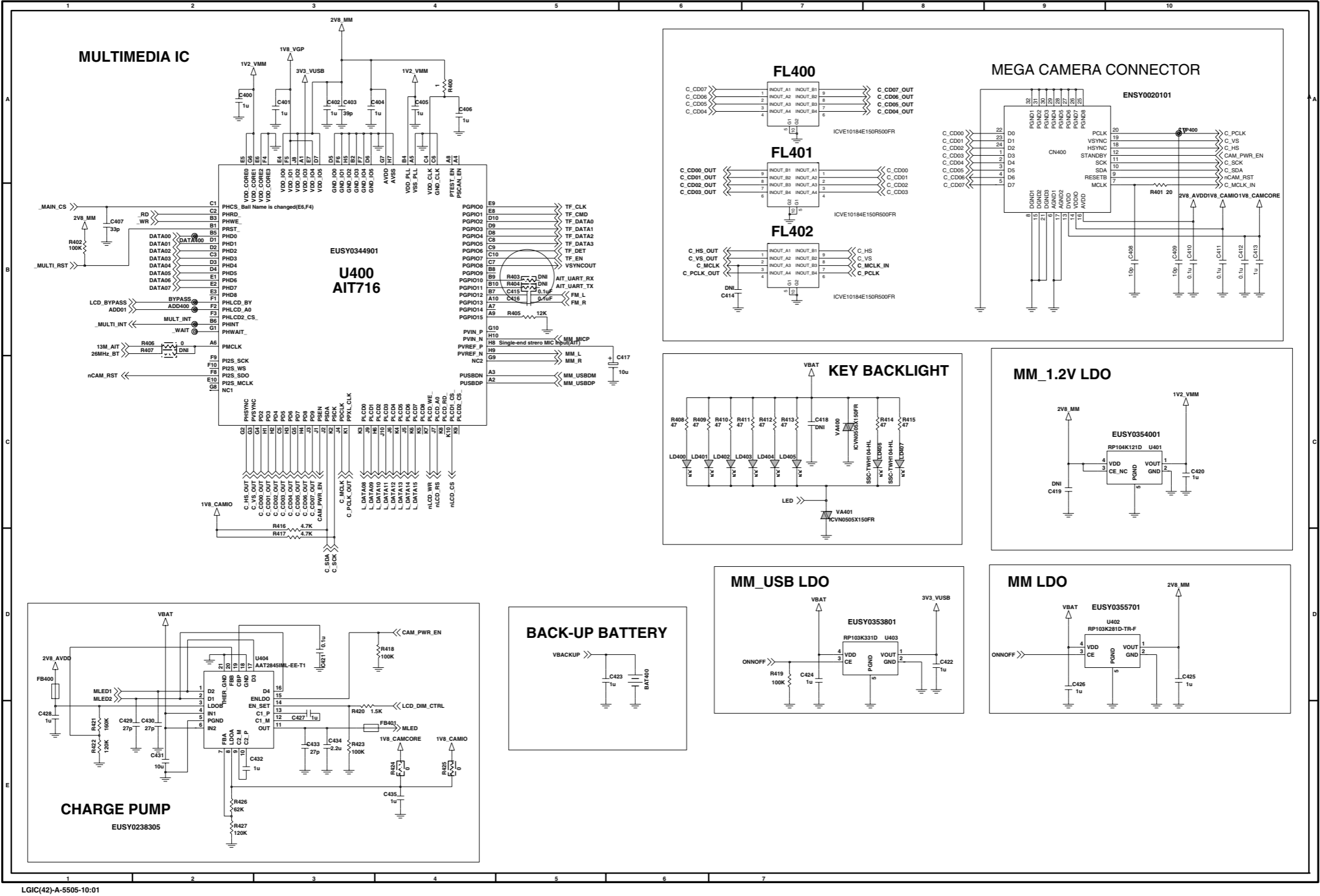
7. CIRCUIT DIAGRAM



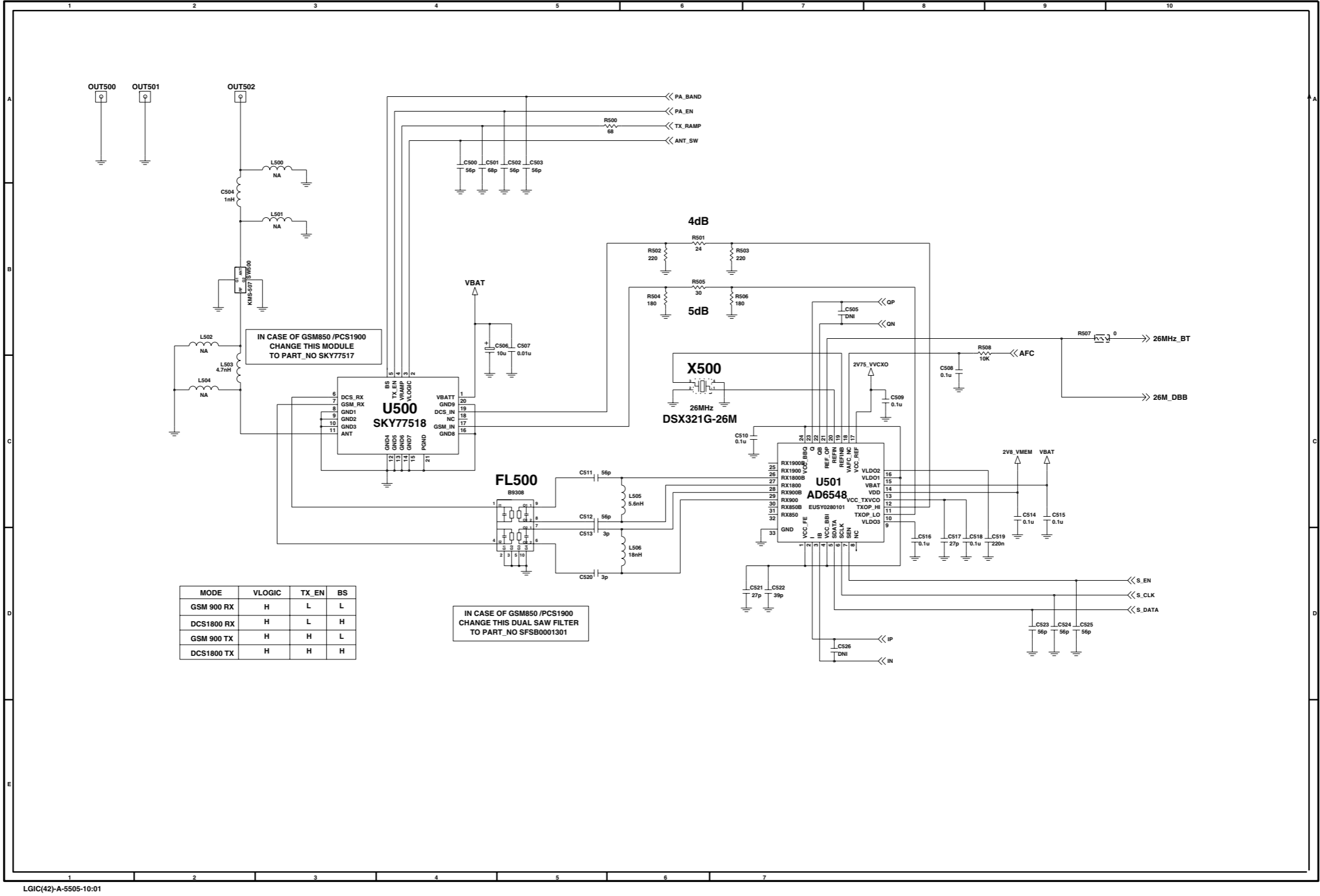
7. CIRCUIT DIAGRAM



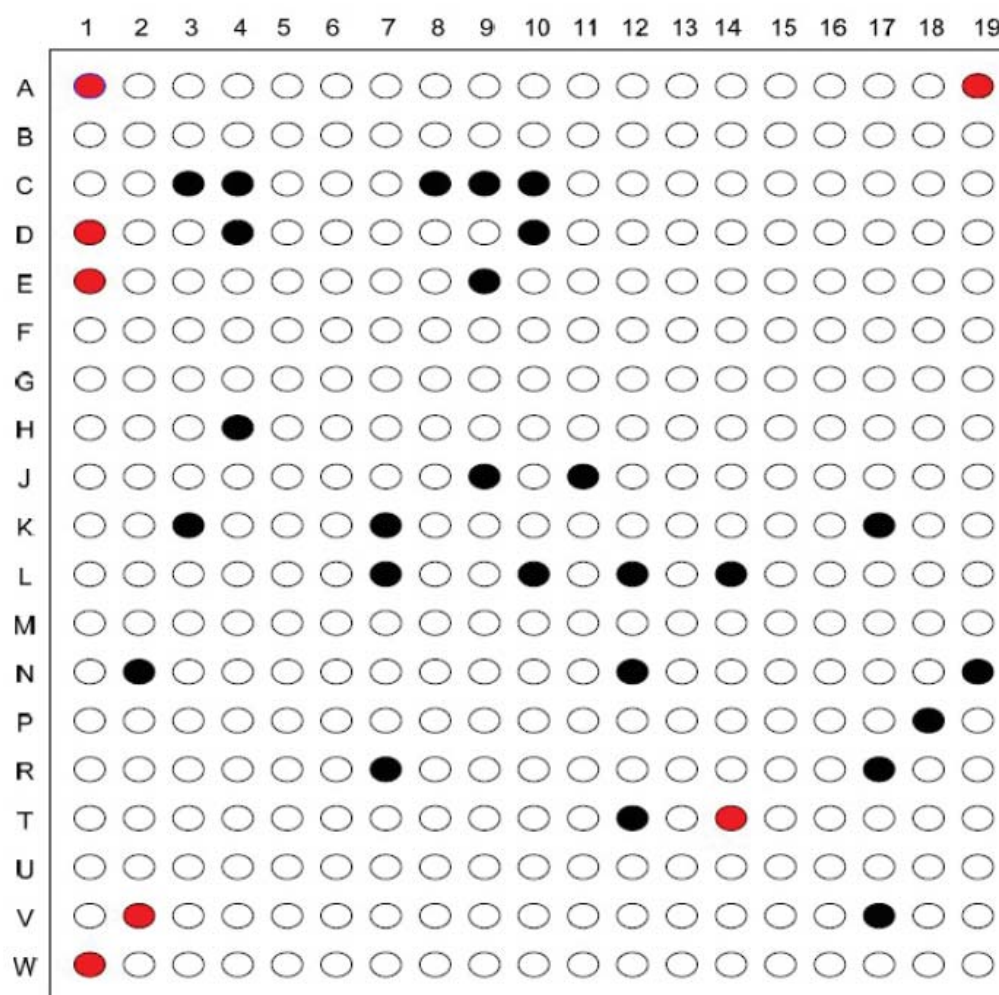
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



8. BGA Pin Map

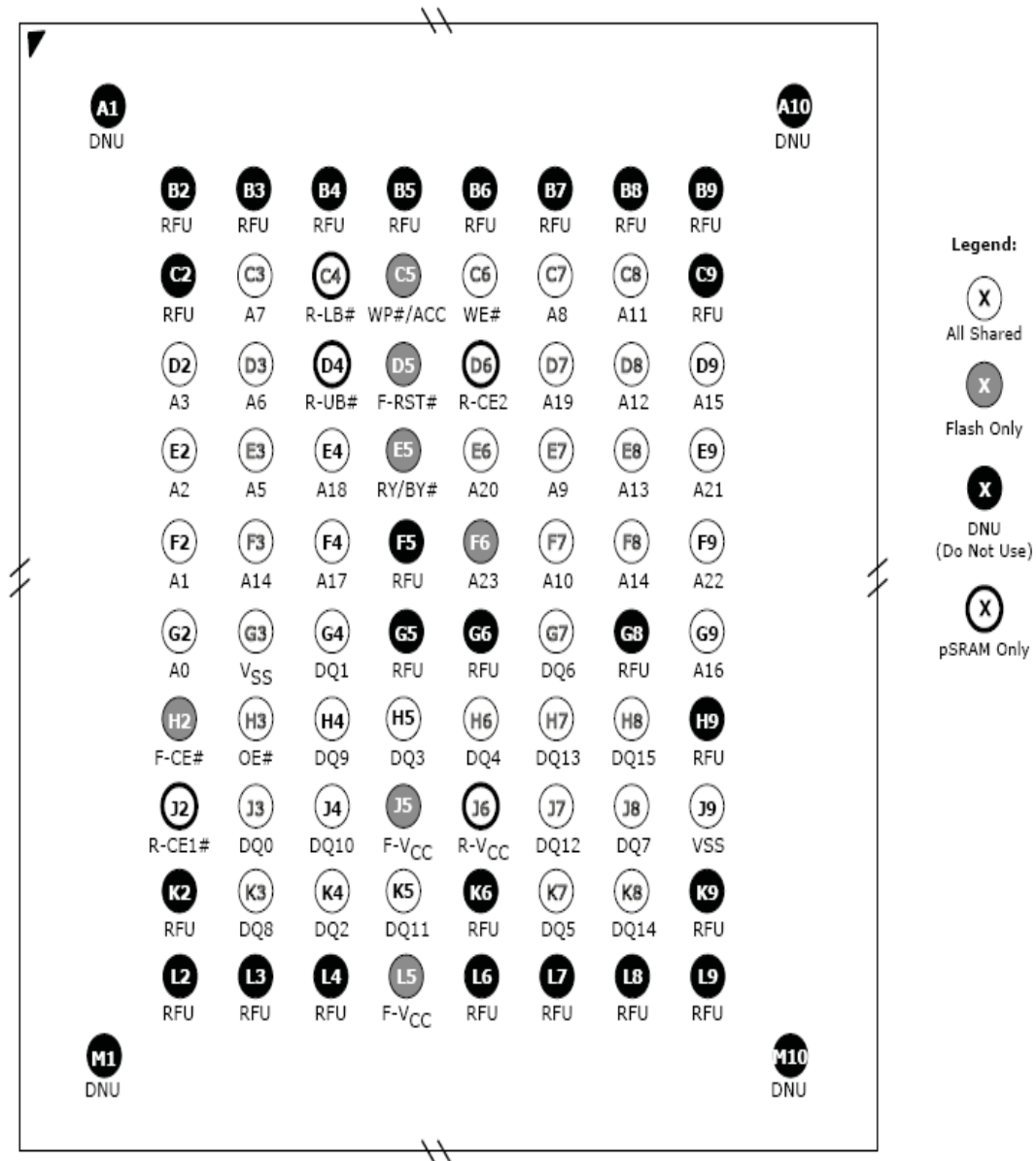


U103 AD6726 (EUSY0364401) Top View

● And ● Not use

U103,AD6726(EUSY0364401)

8. BGA Pin Map



U100,S71PL256NC0_TLA084(EUSY0288701)

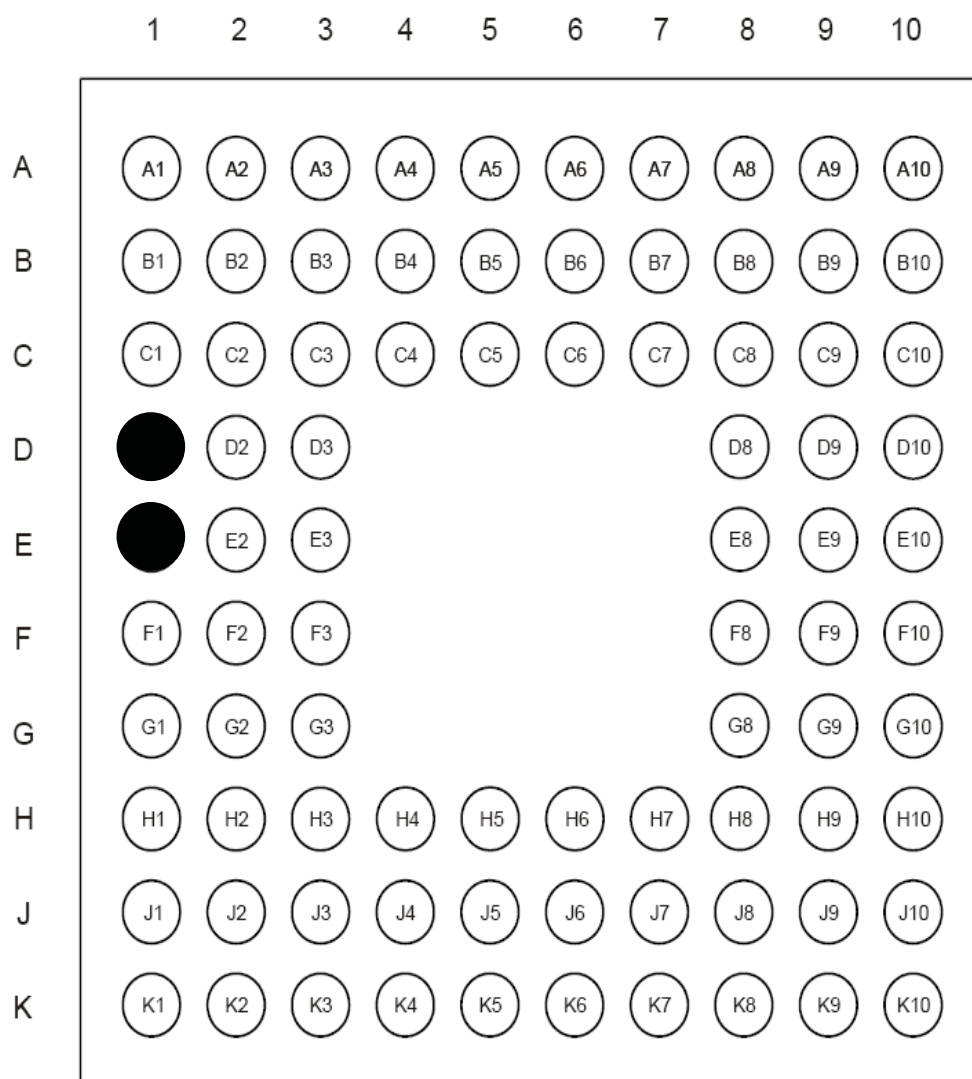


Figure 3.1: BlueCore5-FM BGA Device Pinout

○ Use

● Don't Use

U200,BLUECORE5-FM(SMZ0015801)

8. BGA Pin Map

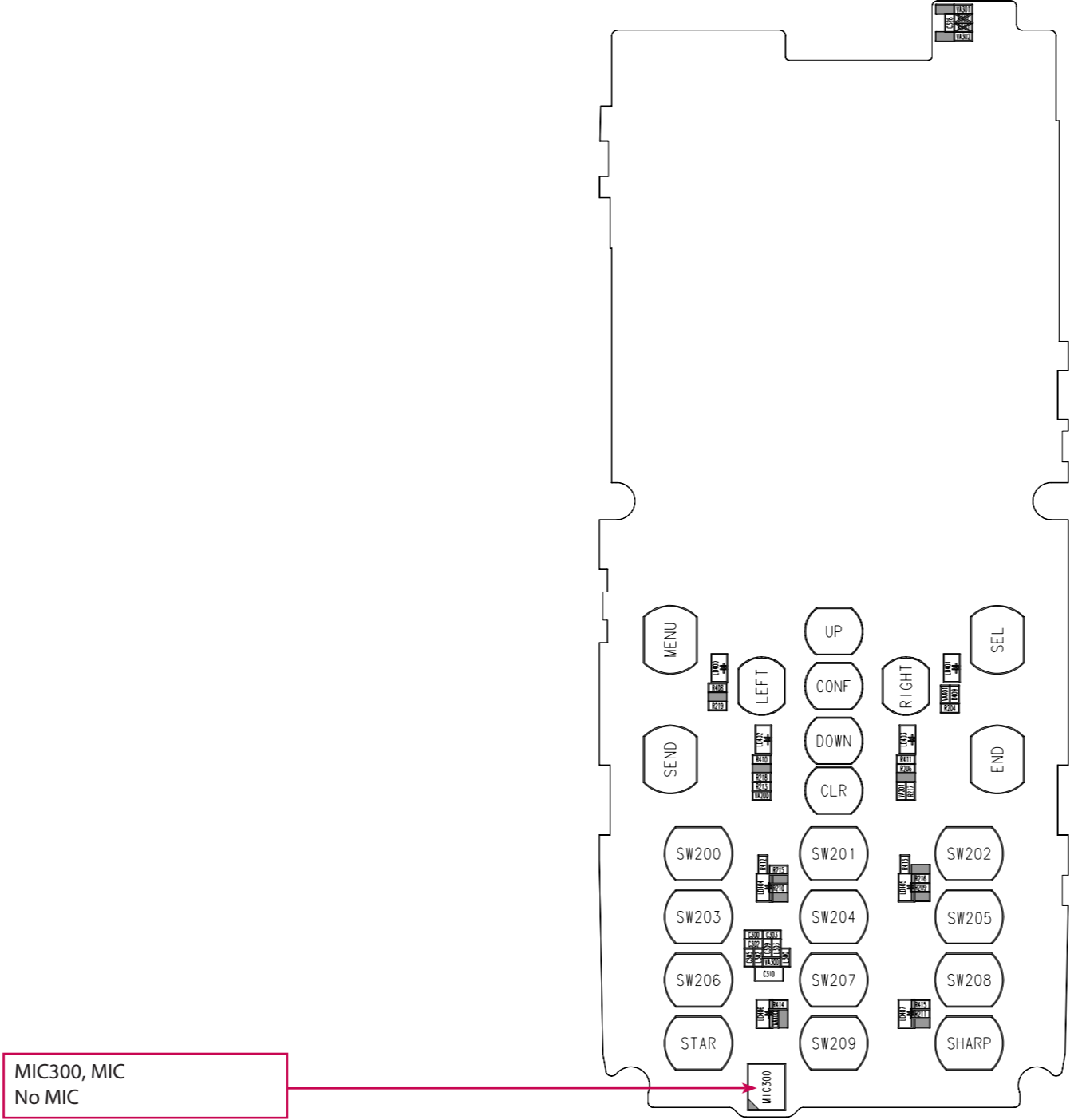
➤ 7mm*7mm (mass production version)

K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
PPXL_CLK	PSCK	PLCD0	PLCD5	PLCD8	PLCD7	PLCD_WE_	PLCD_RD_	PLCD2_CS_	PLCD1_CS_
J1	J2	J3	J4	J5	J6	J7	J8	J9	J10
PSEN	PSDA	PD9	PDCLK	PLCD6	PLCD4	PLCD_A0	VDD_IO2	PLCD1	PLCD3
H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
PD3	PD4	PD6	PD8	GND_IO2	PLCD2	AVSS	VREF	AU_LOUT	AU_RIN
G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
PHWAIT_	PHSYNC	PVSYNC	PD2	PD7	VDD_CORE	AVDD	PI2S_SDI	AU_ROUT	AU_LIN
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
PHLCD_BY	PHLCD_A0	PHLCD2_CS_	GND_CORE	VDD_IO1	GND_IO1	GND_IO4	PI2S_SDO	PIS_SCK	PI2S_WS
E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
PHD6	PHD7	PHD8	VDD_IO0	VDD_CORE	GND_CORE	VDD_IO4	PGPIO1	PGPIO0	PI2S_MCLK
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
PHD1	PHD2	PHD4	PHD5	GND_IO0	GND_IO5	VDD_IO5	PGPIO4	PGPIO3	PGPIO2
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
PHCS_	PHRD_	PHD3	VDD_CLK	PD5	GND_CLK	PGPIO8	PGPIO5	PGPIO6	PGPIO7
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
PRST_	GND_IO3	PHWE_	VDD_PLL	PHD0	PHINT	PGPIO12 (AUX_L)	PGPIO9	PGPIO10	PGPIO11
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
VDD_IO3	PUSBDP	PUSBDN	PSCAN_EN	VSS_PLL	PMCLK	PGPIO14	PTEST_EN	RREF	PGPIO13 (AUX_R)

[Bottom View]

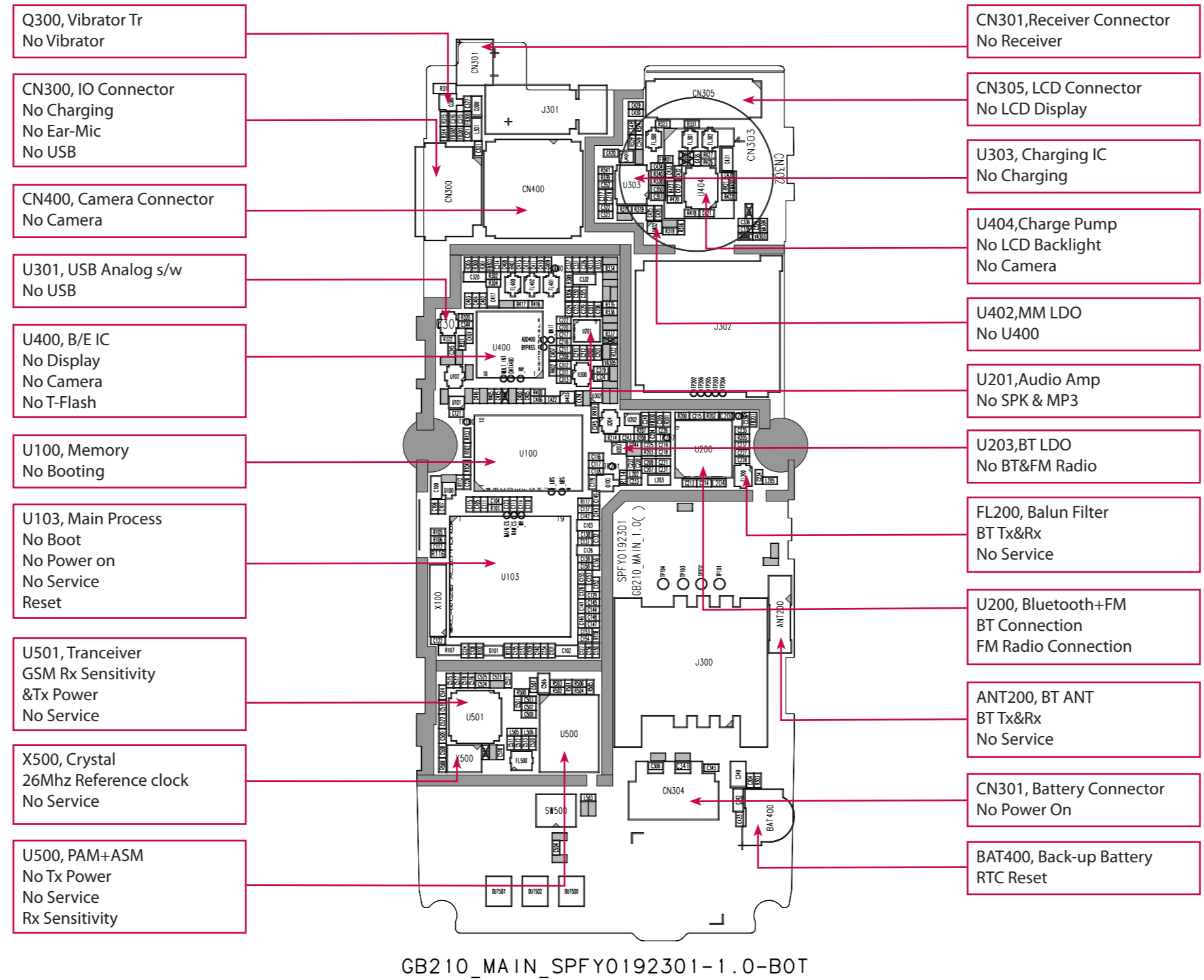
U400,AIT716(EUSY0344901)

9. PCB LAYOUT



GB210_MAIN_SPFY0192301-1.0-TOP

9. PCB LAYOUT



10. STAND ALONE TEST

10.1 Introduction

This manual explains how to examine the status of RX and TX of the model.

A. Tx Test

TX test - this is to see if the transmitter of the phones is activating normally.

B. Rx Test

RX test - this is to see if the receiver of the phones is activating normally.

10.2 Setting Method

A. COM port

- a. Move your mouse on the "Option" button, then click the right button of the mouse and select "Com setting".
- b. In the "Dialog Menu", select the values as explained below.
 - Port : select a correct COM port
 - Baud rate : 115000
 - Leave the rest as default values

B. Tx

1. Selecting Channel

- Select one of GSM or DCS/PCS Band and input appropriate channel.

2. Selecting APC

- a. Select either Power level or Scaling Factor.
- b. Power level
 - Input appropriate value GSM900 (between 5~19) or DCS (between 0~15)
- c. Scaling Factor
 - A 'Ramp Factor' appears on the screen.
 - You may adjust the shape of the Ramp or directly input the values.

C. Rx

1. Selecting Channel

- Select one of GSM850 or DCS/PCS Band and input appropriate channel.

2. Gain Control Index (0~ 26) and RSSI level

- See if the value of RSSI is close to -16dBm when setting the value between 0 ~ 26 in Gain Control Index.
- Normal phone should indicate the value of RSSI close to -16dBm.

10. STAND ALONE TEST

10.3 Means of Test

- Select a COM port
- Set the values in Tx or Rx
- Select band and channel
- After setting them all above, press connect button.
- Press the start button

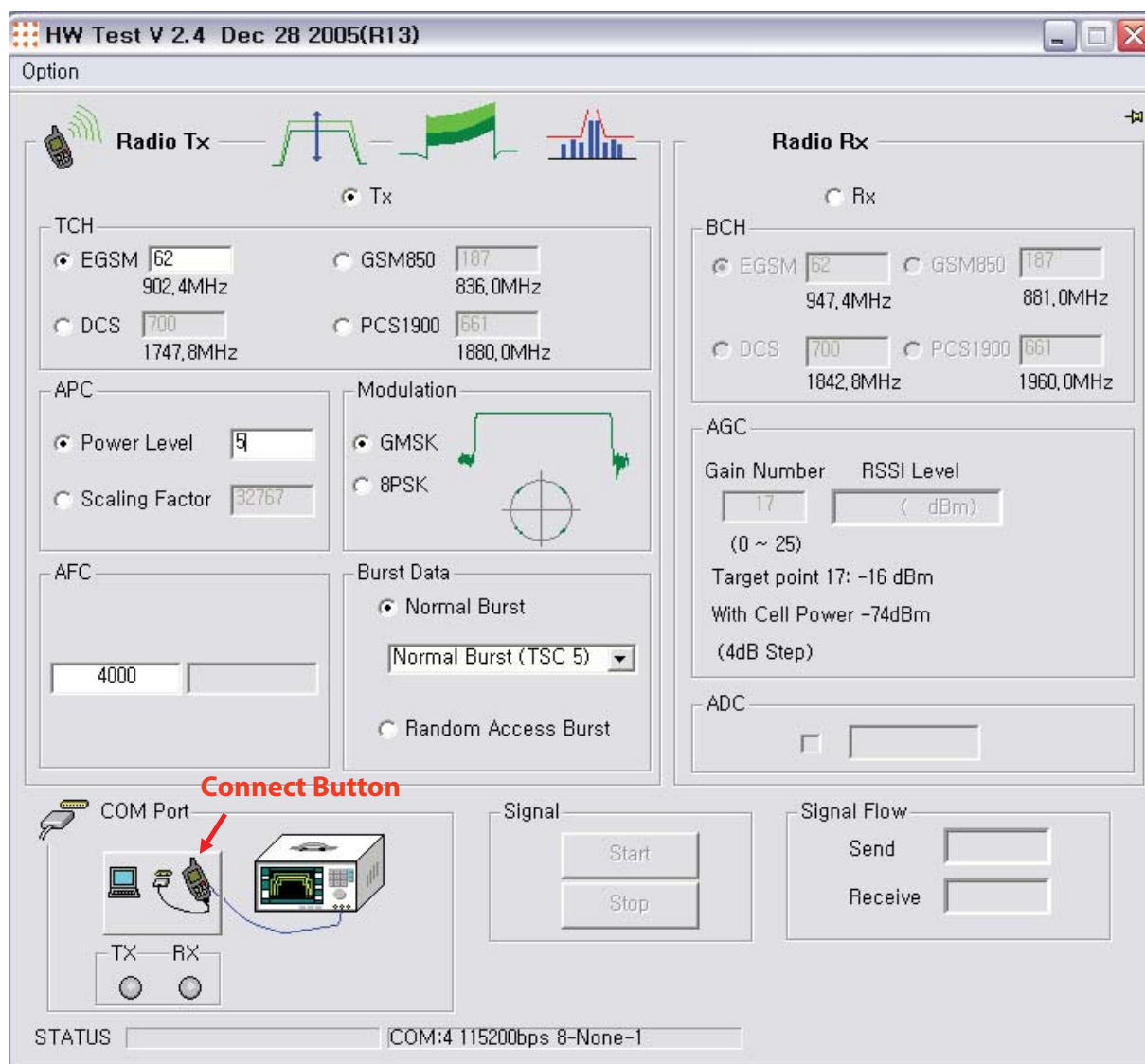


Figure 10.3.1 HW test program

10. STAND ALONE TEST

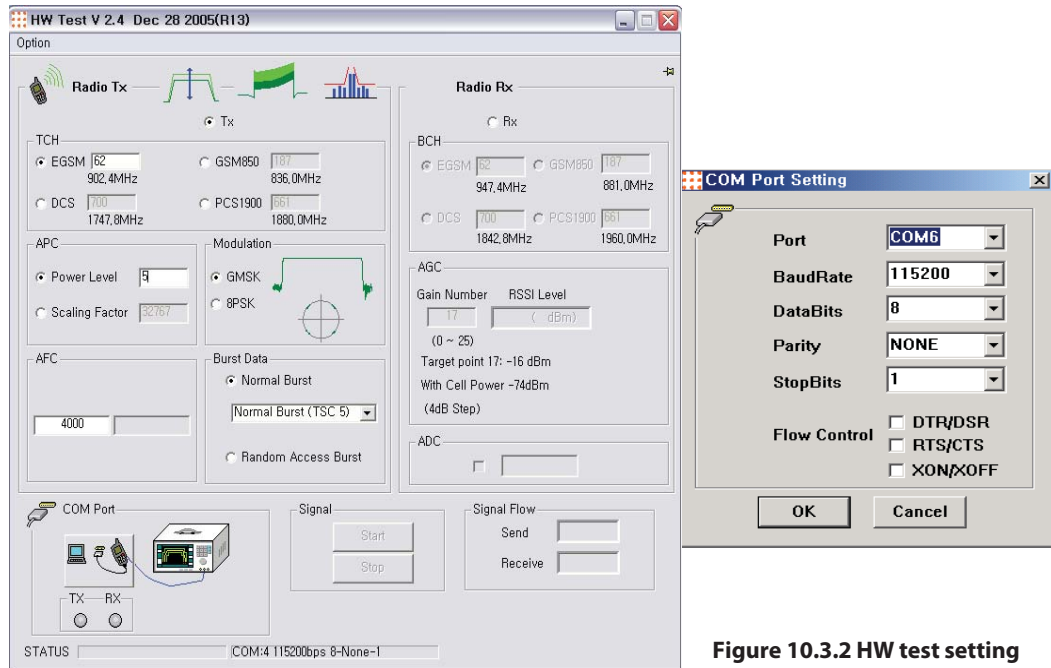


Figure 10.3.2 HW test setting

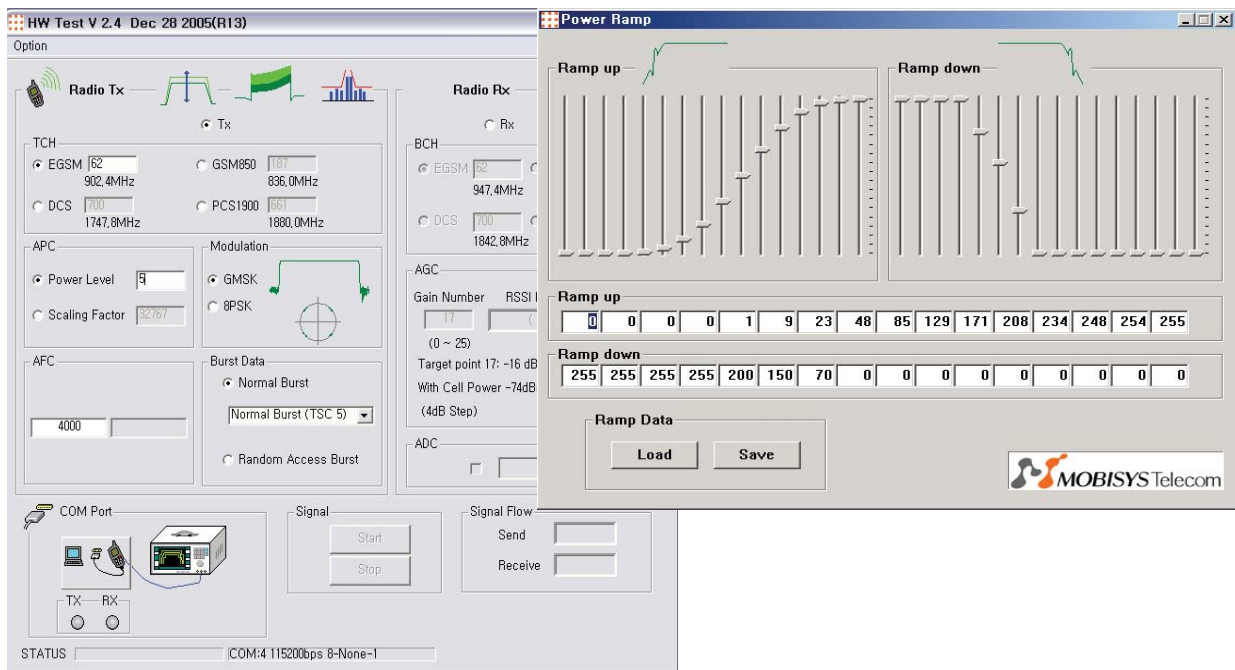


Figure 10.3.3 Ramping profile

11. AUTO CALIBRATION

11. AUTO CALIBRATION

11.1 Overview

Auto-cal (Auto Calibration) is the PC side Calibration tool that perform Tx, Rx and Battery Calibration with Agilent 8960(GSM call setting instrument) and Tektronix PS2521G(Programmable Power supply).

Auto-cal generates calibration data by communicating with phone and measuring equipment then write it into calibration data block of flash memory in GSM phone.

11.2 Equipment List

Equipment for Calibration	Type / Model	Band
Wireless Communication Test Set	HP-8960	Agilent
RS-232 Cable and Test JIG		LG
RF Cable		LG
Power Supply	HP-66311B	Agilent
GPIO interface card	HP-GPIB	Agilent
Calibration & Final test software		LG
Test SIM Card		
PC (for Software Installation)	Pentium II class above 300MHz	

Table 11.2.1 Calibration Equipment List.

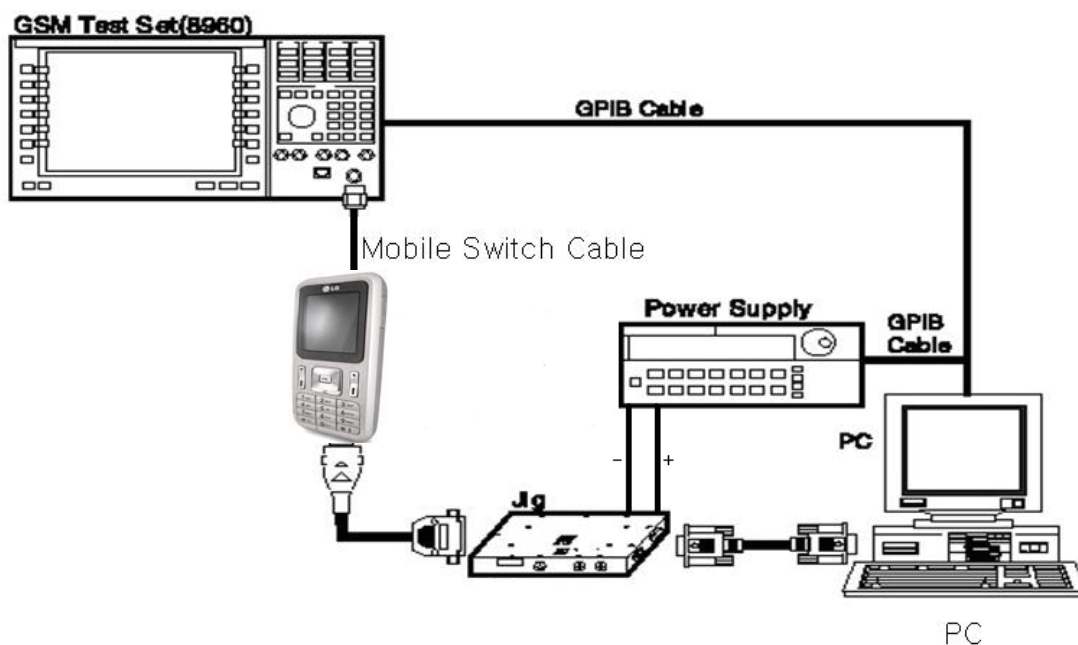


Figure 11.2.1 Equipment Setup

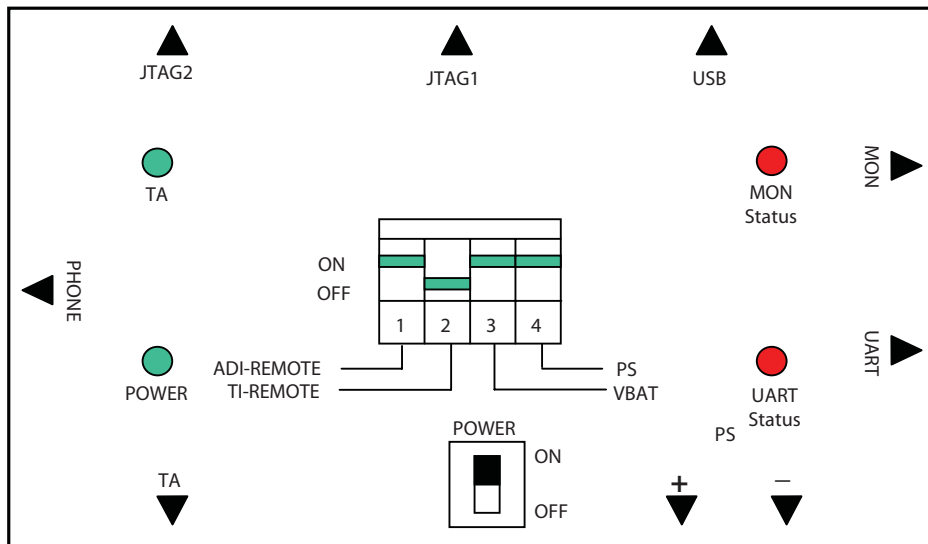


Figure 11.2.2 The top view of Test JIG

11.3 Test Jig Operation

Power Source	Description
Power Supply	Usually 4.0V

Table 11.3.1 Jig Power

Switch Number	Name	Description
Switch 1	ADI-REMOTE	In ON state, phone is awaked. It is used ADI chipset.
Switch 2	TI-REMOTE	In ON state, phone is awaked. It is used TI chipset.
Switch 3	VBAT	Power is provided for phone from battery
Switch 4	PS	Power is provided for phone from Power supply

Table 11.3.2 Jig DIP Switch

LED Number	Name	Description
LED 1	POWER	Power is provided for Test Jig
LED 2	TA	Indicate charging state of the phone battery
LED 3	UART	Indicate data transfer state through the UART port
LED 4	MON	Indicate data transfer state through the MON port

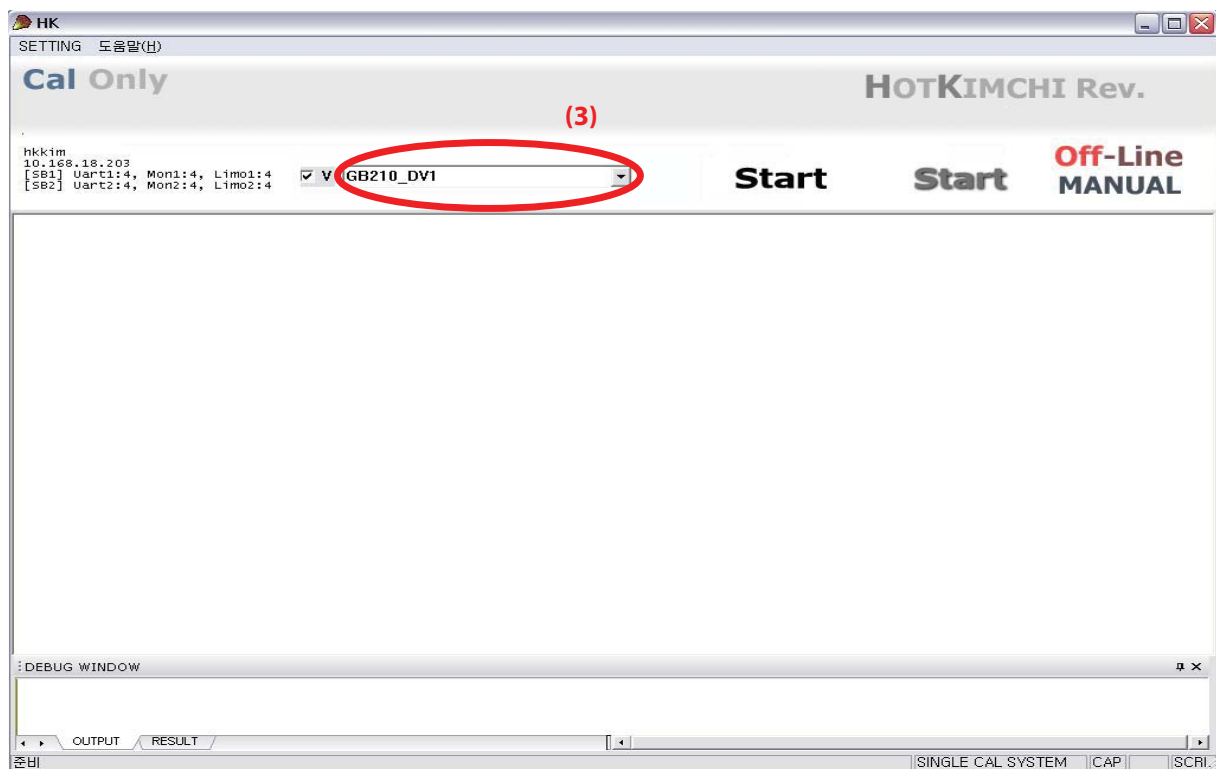
Table 11.3.3 LED Description

11. AUTO CALIBRATION

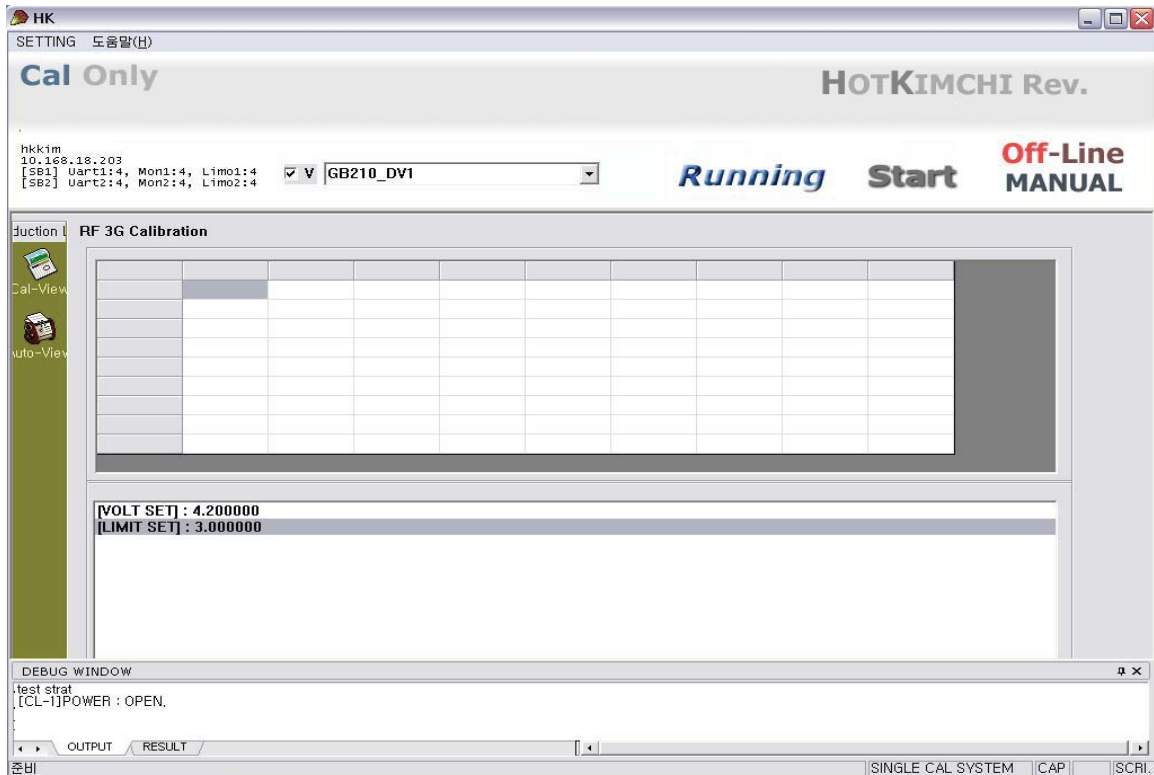
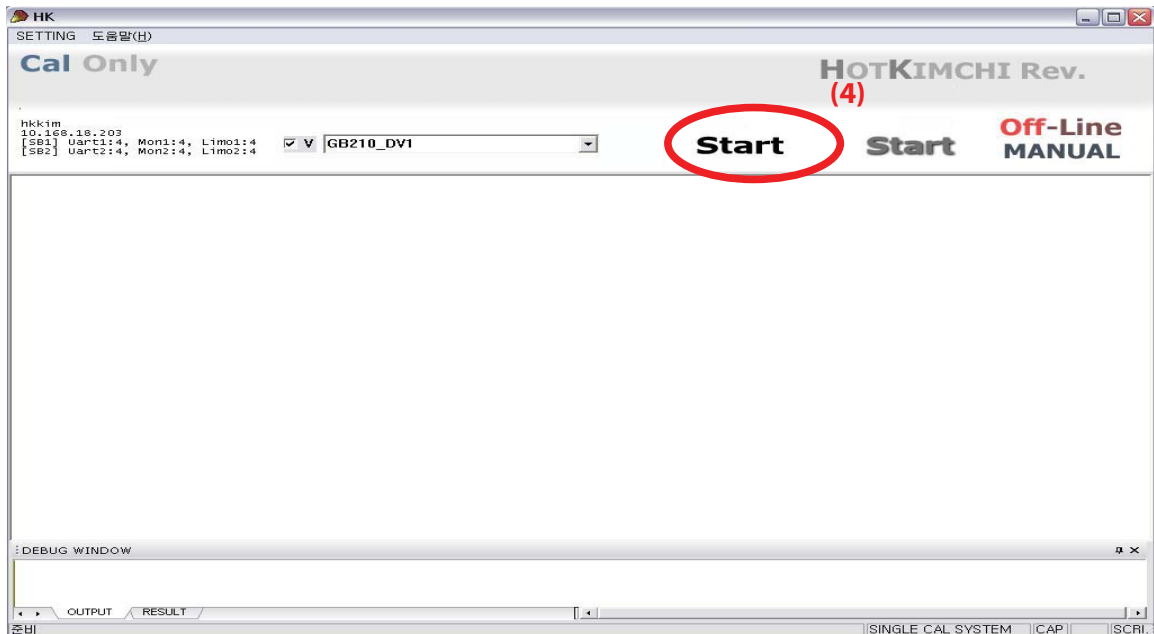
1. Connect as Fig 6-2(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Set the Power Supply 4.0V
3. Set the 3rd, 4th of DIP SW ON state always
4. Press the Phone power key, if the Remote ON is used, 1st ON state

11.4 Procedure

1. Connect as Fig 11.2.2 (RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general.)
2. Run **Hot Kimchi.exe** to start calibration.
3. From the Calibration menu, Select GB210!



4. Press Calibration START



11. AUTO CALIBRATION

11.5 AGC

This procedure is for Rx calibration.

In this procedure, We can get RSSI correction value. Set band EGSM and press Start button the result window will show correction values per every power level and gain code and the same measure is performed per every frequency.

11.6 APC

This procedure is for Tx calibration.

In this procedure you can get proper scale factor value and measured power level.

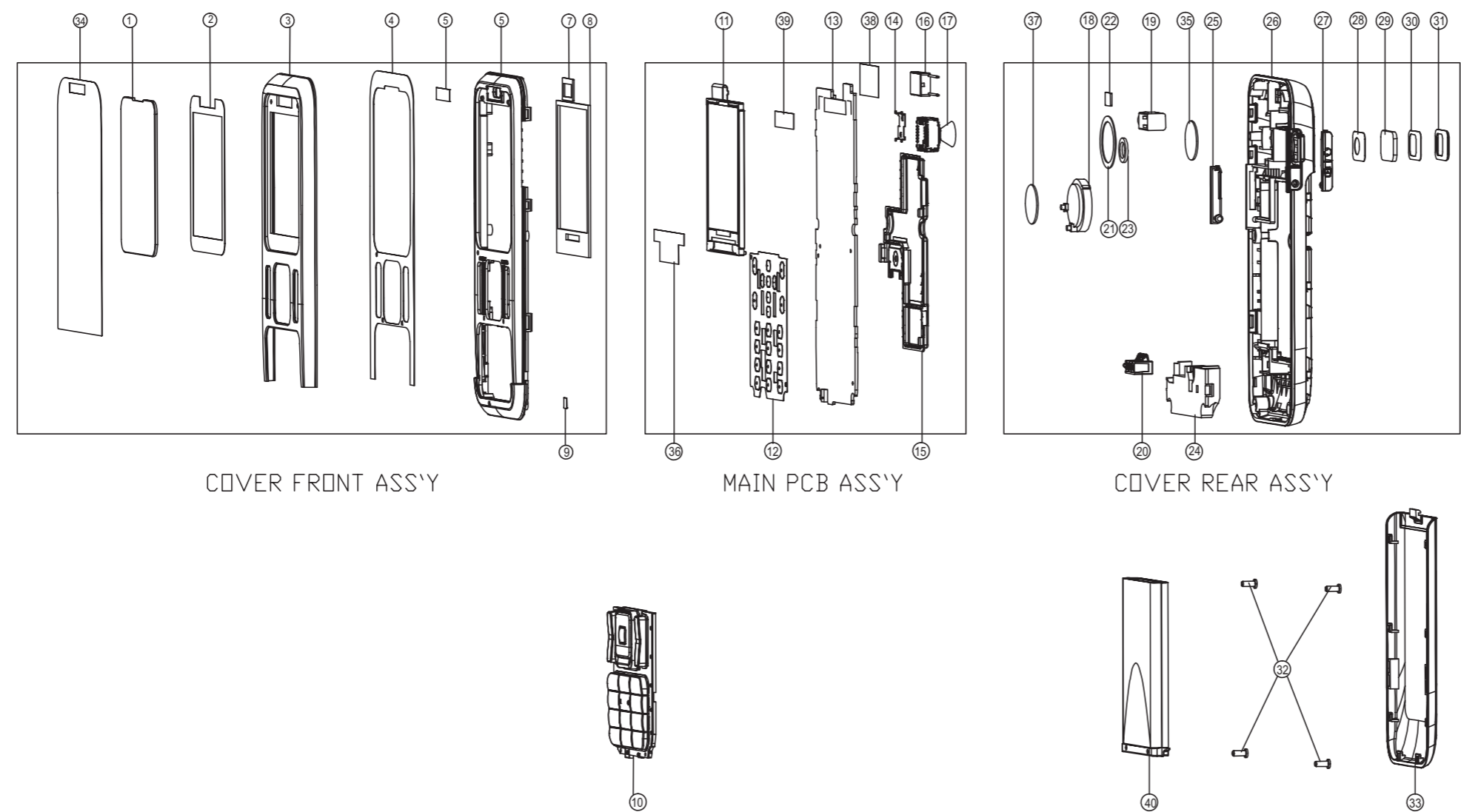
11.7 ADC

This procedure is for battery calibration.

You can get main Battery Config Table and temperature Config Table will be reset.

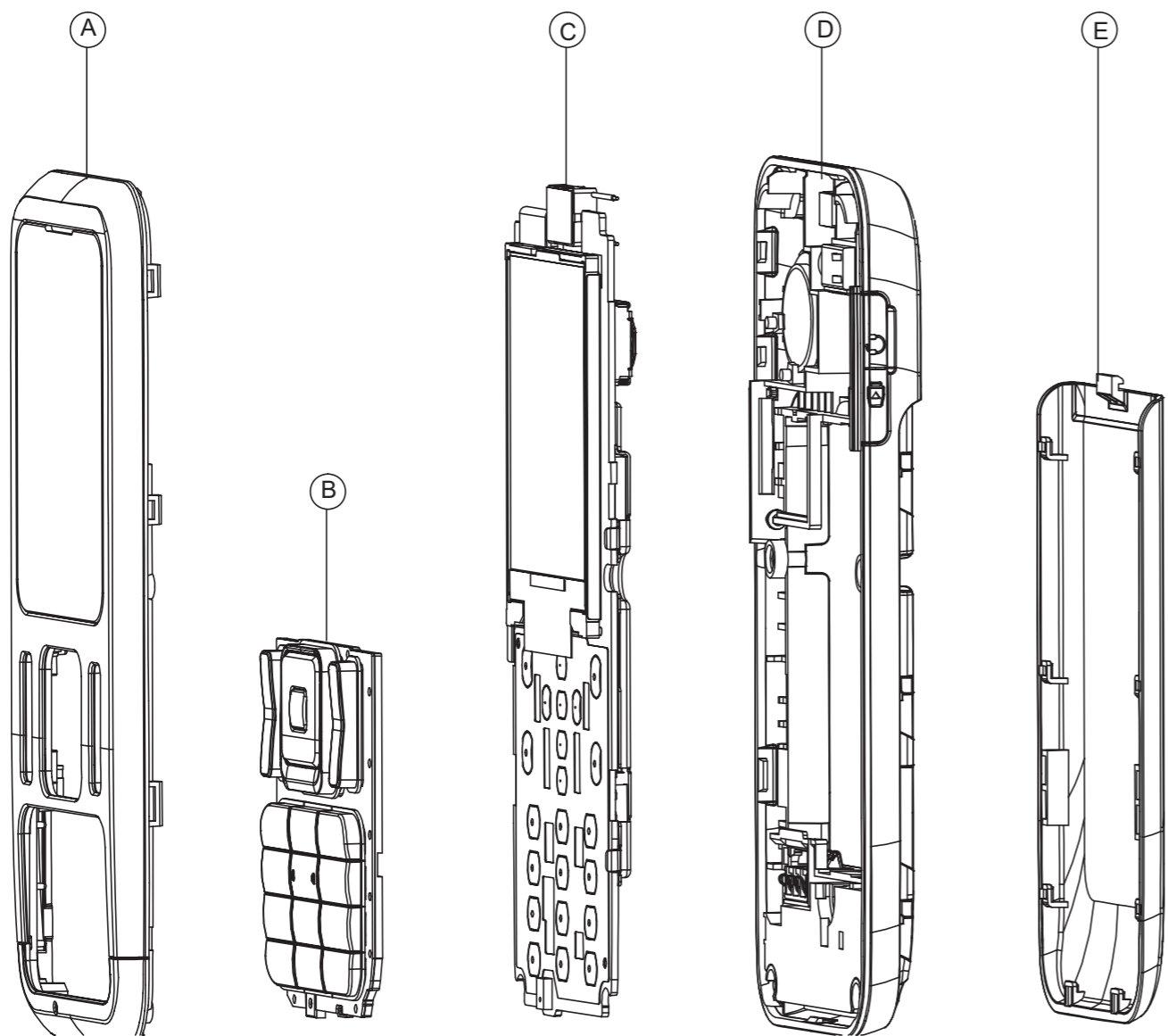
12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW



40	BATTERY PACK	1	MIDZ0196101	
39	TAPE_LCD	1	MIDZ0196101	
38	INSULATOR_FPCB	1	MIDZ0196101	
37	PAD_SPEAKER_SMT	1	MPBN0064401	
36	GASKET_LCD	1	MGAD184201	
35	FILTER_SPEAKER	1	MFBC0045901	
34	PROTECTOR_FRONT	1	MTAB0274701	
33	COVER,BATTERY	1	MCJA0076101	
32	SCREW	4	GMEY0009201	
31	DECO,CAMERA	1	MDAD0041801	
30	TAPE,DECO(CAMERA)	1	MTAA0173001	
29	WINDOW,CAMERA	1	MWAE0041901	
28	TAPE,WINDOW(CAMERA)	1	MTAD0096801	
27	CAP,EARPHONE JACK	1	MCCC0060301	
26	COVER,REAR	1	MCJN0093901	
25	CAP,MULTIMEDIA CARD	1	MCCG0017001	
24	INTTENA	1	SNGF0042501	
23	PAD,CAMERA	1	MPBT0067301	
22	PAD,RECEIVER(REAR)	1	MPBM0026801	
21	PAD,SPEAKER(REAR)	1	MPBN0064301	
20	CONNECTOR	1	ENZY0021201	
19	MOTOR	1	SJMY0007905	
18	SPEAKER	1	SUSY0024804	
17	CAMERA	1	SVCY0017601	
16	RECEIVER	1	SURY0013702	
15	CAN,SHIELD	1	MCBA0040801	
14	BRACKET,SPEAKER	1	MBFK0004801	
13	PCB ASSY,MAIN	1	SAFF0216001	
12	DOME ASSY,METAL	1	ADCA0091201	
11	LCD	1	SVLM0030401	
10	BUTTON ASSY,MAIN	1	ABGF0009901	
9	FILTER,MIKE	1	MFBD0035001	
8	PAD,LCD	1	MPBG0085201	
7	PAD,RECEIVER(FRONT)	1	MPBM0026701	
6	COVER,FRONT	1	MCJK0097101	
5	FILTER,RECEIVER	1	MFBB0029101	
4	TAPE,DECO(FRONT)	1	MTAA0172901	
3	DECO,FRONT	1	MDAG0042401	
2	TAPE,WINDOW	1	MTAD0096701	
1	WINDOW,LCD	1	MWAC0110301	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

ASS'Y EXPLODED VIEW



E	COVER BATTERY	1	MCJA0076101	
D	COVER REAR ASS'Y	1	ACGM0123401	
C	MAIN PCB ASS'Y	1	SAFY0303401	
B	BUTTON ASS'Y	1	ABGF0009901	
A	COVER FRONT ASS'Y	1	ACGK0125301	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
2	AAAY00	ADDITION	AAAY0353301		SILVER	
5	MCHZ00	COMPACT DISK	MCHZ0070301	BOX, SW, , , , ,	BLACK	
3	MCJA00	COVER,BATTERY	MCJA0076101	MOLD, PC LUPOY SC-1004A, , , , ,	WITHOUT COLOR	E, 33
3	SGDY00	DATA CABLE	SGDY0014401	; ,[empty] , [empty] , 1.2M , ,BLACK ,4, 18Pin Plug USB Databable ,N		
2	APAY00	PACKAGE	APAY0122801	GB210 THA Packing(Peel/Made by LGE/TR3)	WITHOUT COLOR	
3	APLY00	PALLET ASSY	APLY0002401	TR3 STD(Body-480ea) Pallet Assy	Without Color	
4	MPCY00	PALLET	MPCY0013203	COMPLEX, (empty), , , , ,	BLUE	
3	MBAD00	BAG,VINYL(PE)	MBAD0005201	COMPLEX, (empty), , , , ,	DARK BLUE	
3	MLAC00	LABEL,BARCODE	MLAC0003018	PRINTING, (empty), , , , ,	Without Color	
3	MLAZ00	LABEL	MLAZ0050901	PRINTING, (empty), , , , ,	WITHOUT COLOR	
2	APEY00	PHONE	APEY0721101		SILVER	
3	ABGF00	BUTTON ASSY,MAIN	ABGF0009901		WITHOUT COLOR	B, 10
3	ACGK00	COVER ASSY,FRONT	ACGK0125301		BLACK	A
4	MCJK00	COVER,FRONT	MCJK0097101	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	6
5	MICE00	INSERT,NUT	MICE0005501	COMPLEX, (empty), , , , ,	Without Color	
4	MDAG00	DECO,FRONT	MDAG0042401	PRESS, AI, 0.63, , , ,	WITHOUT COLOR	3
4	MFBB00	FILTER,RECEIVER	MFBB0029101	COMPLEX, (empty), , , , ,	Without Color	5
4	MFBD00	FILTER,MIKE	MFBD0035001	COMPLEX, (empty), , , , ,	Without Color	9
4	MPBG00	PAD,LCD	MPBG0085201	COMPLEX, (empty), , , , ,	Without Color	8
4	MPBM01	PAD,RECEIVER	MPBM0026701	COMPLEX, (empty), , , , ,	Without Color	7
4	MTAA00	TAPE,DECO	MTAA0172901	COMPLEX, (empty), 0.15, , , ,	Without Color	4
4	MTAB00	TAPE,PROTECTION	MTAB0274701	COMPLEX, (empty), , , , ,	Without Color	34

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MTAD00	TAPE,WINDOW	MTAD0096701	COMPLEX, (empty), 0.15, , , ,	Without Color	2
4	MWAC00	WINDOW,LCD	MWAC0110301	CUTTING, PMMA MR 200, 0.8, , , ,	WITHOUT COLOR	1
3	ACGM00	COVER ASSY,REAR	ACGM0123401		BLACK	D
4	MCCC00	CAP,EARPHONE JACK	MCCC0060301	MOLD, PC LUPOY SC-1004A, , , , ,	WITHOUT COLOR	27
4	MCCG00	CAP,MULTIMEDIA CARD	MCCG0017001	MOLD, PC LUPOY SC-1004A, , , , ,	WITHOUT COLOR	25
4	MCJN00	COVER,REAR	MCJN0093901	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	26
4	MDAD00	DECO,CAMERA	MDAD0041801	PRESS, STS, , , , ,	BLACK	31
5	MTAA00	TAPE,DECO	MTAA0173001	COMPLEX, (empty), , , , ,	Without Color	30
4	MFBC00	FILTER,SPEAKER	MFBC0045901	COMPLEX, (empty), , , , ,	Without Color	35
4	MPBM00	PAD,RECEIVER	MPBM0026801	COMPLEX, (empty), , , , ,	Without Color	22
4	MPBN00	PAD,SPEAKER	MPBN0064401	COMPLEX, (empty), , , , ,	Without Color	37
4	MPBN01	PAD,SPEAKER	MPBN0064301	COMPLEX, (empty), , , , ,	Without Color	21
4	MPBT00	PAD,CAMERA	MPBT0067301	COMPLEX, (empty), , , , ,	Without Color	23
4	MTAD00	TAPE,WINDOW	MTAD0096801	COMPLEX, (empty), , , , ,	Without Color	28
4	MWAE00	WINDOW,CAMERA	MWAE0041901	CUTTING, PMMA MR 200, , , , ,	BLACK	29
5	ADCA00	DOME ASSY,METAL	ADCA0091201		WITHOUT COLOR	12
5	MCBA00	CAN,SHIELD	MCBA0040801	PRESS, STS, 0.3, , , ,	WITHOUT COLOR	15
6	MLAB	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	WHITE	
5	MGAD00	GASKET,SHIELD FORM	MGAD0184201	COMPLEX, (empty), , , , ,	GOLD	36
5	MIDZ00	INSULATOR	MIDZ0196101	COMPLEX, (empty), , , , ,	BLUE	38, 39, 40
5	MTAJ00	TAPE,FLEXIBLE PCB	MTAJ0013401	COMPLEX, (empty), , , , ,	Without Color	
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	WITHOUT COLOR	
6	CN303	BRACKET,SPEAKER	MBFK0004801	PRESS, STS, 0.2, , , ,	WITHOUT COLOR	14

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.2 Replacement Parts <Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
1		GSM,BAR/FILP	TGSM0067602		SILVER	
4	ENZY00	CONNECTOR,ETC	ENZY0021201	3 PIN,0.25 mm,ANGLE , ,		20
4	SJMY00	VIBRATOR,MOTOR	SJMY0007904	3 V,1 A,4*8 ,height 5.8mm ,; ,3V , , ,11000 , , , ,		19
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0042501	3.0 ,-5.0 dBd,, ,GSM900/1800 ,; ,DUAL ,-5.0 ,50 ,3.0		24
4	SUSY00	SPEAKER	SUSY0024804	PIN ,8 ohm,90 dB,16 mm,3.4T ,; , , , , , ,CONTACT		18
3	SAFY00	PCB ASSY,MAIN	SAFY0303401			C
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0095801		SILVER	
5	SURY00	RECEIVER	SURY0013702	ASSY ,102 dB,32 ohm,1107*3.2 ,10mm ,; , , , , ,WIRE ,		16
5	SVCY00	CAMERA	SVCY0017601	CMOS ,MEGA ,1.3M, Siliconfile(1/4"), 8x8x5t, Socket Type		17
5	SVLM00	LCD MODULE	SVLM0030401	MAIN ,1.77" (128*160) ,34*46.7*1.9 ,262k ,TFT ,TM ,LGDP4513 ,		11
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0216001			13
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0121601			
6	ANT200	ANTENNA,GSM,FIXED	SNGF0040701	3.0 ,-5.0 dBd,, ,internal, bluetooth chip, 8*2*2 ,; ,SINGLE ,-5.0 ,50 ,3.0		
6	BAT400	BATTERY,CELL,LITHIUM	SBCL0001701	2 V,0.5 mAh,CYLINDER ,Reflow type BB, Max T 1.67, phi 4.8, Pb-Free		
6	C100	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C101	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C103	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C104	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C105	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C106	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C107	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C108	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C109	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C110	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C111	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C112	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C113	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C114	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C116	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C117	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C119	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C121	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0000810	9 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C124	CAP,CHIP,MAKER	ECZH0000810	9 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C128	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C129	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C133	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C136	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C141	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C142	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C143	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C144	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C145	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C146	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C147	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C148	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C149	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C150	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C151	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C152	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C153	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C155	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C156	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C200	CAP,CHIP,MAKER	ECZH0003124	68 nF,16V ,K ,X7R ,HD ,1005 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C204	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C214	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C220	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C223	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C224	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C225	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C230	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C231	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C233	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C234	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C235	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C236	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C237	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C240	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C243	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C244	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C245	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C304	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C312	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C313	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C314	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C315	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C316	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C318	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C319	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C320	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C323	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C324	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C325	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C326	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C327	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C329	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C330	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C331	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C332	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C335	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C336	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C337	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C340	CAP,TANTAL,CHIP	ECTH0001704	22 uF,10V ,M ,L ,ESR ,2012 ,R/TP , , ,[empty] ,[empty] , ,[empty] , ,2.2X1.25X1.2MM ,[empty] ,[empty] ,[empty]		
6	C341	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C342	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	C343	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C344	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C345	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C348	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C349	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C350	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C351	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C352	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C400	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C402	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C403	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C407	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C408	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C410	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C411	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C412	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C415	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , , [empty] [empty] , [empty] , [empty] , [empty] , [empty]		
6	C416	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , , [empty] [empty] , [empty] , [empty] , [empty] , [empty]		
6	C417	CAP,TANTAL,CHIP	ECTH0003701	10 uF,6.3V ,M ,L_ ESR ,1608 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C421	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C422	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C423	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C424	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C426	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C427	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C428	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C429	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C430	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C431	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , , [empty] [empty] , [empty] , [empty] , [empty] , [empty] , 0.8 mm		
6	C432	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C433	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C434	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C435	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C500	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C501	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C502	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C503	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C504	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,		
6	C506	CAP,TANTAL,CHIP	ECTH0004807	10 uF,10V ,M ,STD ,1608 ,R/TP ,; , ,[empty] ,[empty] , , -55TO+125C , ,[empty] ,[empty] ,[empty] ,[empty]		
6	C507	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C508	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C509	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C510	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C511	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C512	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C513	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C514	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C515	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C516	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C517	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C518	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C519	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C521	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C522	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C523	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C524	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C525	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	CN300	CONNECTOR,I/O	ENRY0006801	18 PIN,0.4 mm,ETC , , , , ,18 ,0.40MM ,ANGLE ,RECEPTACLE ,SMD ,R/TP ,		
6	CN305	CONNECTOR,FFC/FPC	ENQY0014901	35 ,0.3 mm,ETC , , , , , ,0.30MM ,FPC ,STRAIGHT ,BOTH ,SMD ,R/TP ,[empty] ,		
6	CN400	CONN,SOCKET	ENSY0020101	24 PIN,ETC , , , , ,0.9 mm,		
6	D100	DIODE,SWITCHING	EDSY0017301	VSM ,15 V,100 mA,R/TP ,PB-FREE		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	D101	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	D300	DIODE,SWITCHING	EDSY0010501	ESC ,30 V,100 mA,R/TP ,SWITCH DIODE		
6	FB200	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
6	FB201	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
6	FB300	FILTER,BEAD,CHIP	SFBH0008105	1800 ohm,1005 ,Chip bead ,; ,1800ohm ,; ,[empty] ,R/TP		
6	FB301	FILTER,BEAD,CHIP	SFBH0008105	1800 ohm,1005 ,Chip bead ,; ,1800ohm ,; ,[empty] ,R/TP		
6	FB302	FILTER,BEAD,CHIP	SFBH0008105	1800 ohm,1005 ,Chip bead ,; ,1800ohm ,; ,[empty] ,R/TP		
6	FB303	FILTER,BEAD,CHIP	SFBH0008105	1800 ohm,1005 ,Chip bead ,; ,1800ohm ,; ,[empty] ,R/TP		
6	FB400	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
6	FB401	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL200	FILTER,DIELECTRIC	SFDY0002601	2450 MHz,2.0*1.25*1.0 ,SMD ,2400M~2500M, IL 3.8, 8pin, U-B, 34.2 ,j95, BT (CSR BC41B143A) ,; ,BPF ,2450 ,100 ,SMD ,R/TP		
6	FL300	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL301	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL302	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL400	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
6	FL401	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
6	FL402	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
6	FL500	FILTER,SAW,DUAL	SFSB0001401	942.5 MHz,35 MHz,2.1 dB,20 dB,1842.5 MHz,75 MHz,2.3 dB,12 dB,2.0*1.6*0.68 ,SMD ,925M~960M,1805M~1880M,10p,B,150_82,150_15,EGS M+DCS Rx ,; ,942.5, 1842.5 ,2.0*1.6*0.68 ,SMD ,R/TP		
6	J300	CONN,SOCKET	ENSY0018701	6 PIN,ETC , ,2.54 mm,H=1.8		
6	J302	CONN,SOCKET	ENSY0021001	8 PIN,ANGLE ,Reverse , mm,		
6	L202	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L203	INDUCTOR,CHIP	ELCH0004904	270 nH,J ,1608 ,R/TP ,		
6	L204	INDUCTOR,CHIP	ELCH0001049	6.8 nH,J ,1005 ,R/TP ,PBFREE		
6	L205	INDUCTOR,CHIP	ELCH0001413	22 nH,J ,1005 ,R/TP ,PBFREE		
6	L301	INDUCTOR,CHIP	ELCH0001556	270 nH,J ,1608 ,R/TP ,		
6	L503	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
6	L505	INDUCTOR,CHIP	ELCH0009103	5.6 nH,J ,1005 ,R/TP ,		
6	L506	INDUCTOR,CHIP	ELCH0009105	18 nH,J ,1005 ,R/TP ,COIL		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	Q100	TR,BJT,NPN	EQBN0012301	ESM ,100 mW,R/TP ,NPN TRANSISTOR		
6	Q300	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3		
6	R100	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R101	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R102	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R104	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R106	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R107	RES,CHIP	ERHY0000512	10M ohm,1/16W,J,1608,R/TP		
6	R108	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R110	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R111	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R112	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R113	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R114	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R115	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R116	RES,CHIP,MAKER	ERHZ0000454	27 Kohm,1/16W ,J ,1005 ,R/TP		
6	R117	RES,CHIP,MAKER	ERHZ0000537	680000 ohm,1/16W ,F ,1005 ,R/TP		
6	R118	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000496	560 ohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000456	2.2 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000287	47 Kohm,1/16W ,F ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
6	R212	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R214	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R300	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R301	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP,MAKER	ERHZ0000435	20 ohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R308	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R309	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R311	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R312	RES,CHIP,MAKER	ERHZ0000702	10 ohm,1/10W ,J ,1608 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000435	20 ohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R318	RES,CHIP,MAKER	ERHZ0000454	27 Kohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R320	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R321	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R322	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R323	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R324	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R325	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R326	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R327	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R328	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R329	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R330	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R331	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R332	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
6	R333	RES,CHIP	ERHY0000275	56K ohm,1/16W,J,1005,R/TP		
6	R334	RES,CHIP	ERHY0000275	56K ohm,1/16W,J,1005,R/TP		
6	R335	RES,CHIP	ERHY0000275	56K ohm,1/16W,J,1005,R/TP		
6	R336	RES,CHIP	ERHY0000275	56K ohm,1/16W,J,1005,R/TP		
6	R337	RES,CHIP	ERHY0000275	56K ohm,1/16W,J,1005,R/TP		
6	R338	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R339	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R340	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R341	RES,CHIP	ERHY0000129	18K ohm,1/16W,F,1005,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000435	20 ohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R403	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R404	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R405	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R406	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R407	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R416	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R417	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R418	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R419	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R420	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R421	RES,CHIP	ERHY0008402	160 Kohm,1/16W ,F ,1005 ,R/TP		
6	R422	RES,CHIP,MAKER	ERHZ0000213	120 Kohm,1/16W ,F ,1005 ,R/TP		
6	R423	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R424	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R425	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R426	RES,CHIP,MAKER	ERHZ0000308	62 Kohm,1/16W ,F ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R427	RES,CHIP,MAKER	ERHZ0000213	120 Kohm,1/16W ,F ,1005 ,R/TP		
6	R500	RES,CHIP,MAKER	ERHZ0000504	68 ohm,1/16W ,J ,1005 ,R/TP		
6	R501	RES,CHIP,MAKER	ERHZ0000522	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R502	RES,CHIP,MAKER	ERHZ0000242	220 ohm,1/16W ,F ,1005 ,R/TP		
6	R503	RES,CHIP,MAKER	ERHZ0000242	220 ohm,1/16W ,F ,1005 ,R/TP		
6	R504	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		
6	R505	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		
6	R507	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R508	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	SW500	CONN,RF SWITCH	ENWY0003301	,SMD ,0.4 dB,		
6	U100	IC	EUSY0288701	BGA ,84 PIN,ETC ,256(1die flash)*64(PSRAM), 3V, 8x11.6x1.2mm, 84ball, Pb-Free		
6	U101	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U102	IC	EUSY0317101	WQFN ,10 PIN,R/TP ,1.8*1.4*0.75		
6	U103	IC	EUSY0364401	BGA ,361 ,R/TP ,ATLAS 2H ULC ,; ,IC,Digital Baseband Processor		
6	U200	MODULE,ETC	SMZY0015801	84 Ball 0.5pitch, BGA , Bluetooth+FM (6.0*6.0*1.0)		
6	U201	IC	EUSY0360201	CSP ,20 ,R/TP ,Class D(mono) + Capless HP + A/S ,; ,IC,Audio Sub System		
6	U202	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U203	IC	EUSY0355701	PLP1010-4 ,4 PIN,R/TP ,150mA 2.8V Single LDO ,; ,IC,Voltage Regulator		
6	U204	IC	EUSY0317101	WQFN ,10 PIN,R/TP ,1.8*1.4*0.75		
6	U300	IC	EUSY0347001	MiniQFN-10L ,10 PIN,R/TP ,1.8X1.4X0.55,0.6 Dual SPDT Analog Switch ,; ,IC,Analog Switch		
6	U301	IC	EUSY0317101	WQFN ,10 PIN,R/TP ,1.8*1.4*0.75		
6	U303	IC	EUSY0351601	DFN ,12 PIN,R/TP ,Dual Charger IC (Bypass) ,; ,IC,Charger		
6	U400	IC	EUSY0344901	BGA ,100 PIN,R/TP ,2M,QCIF30,MP3,USB2.0,7*7 Size ,; ,IC,Digital Signal Processors		
6	U401	IC	EUSY0354001	PLP1010-4 ,4 PIN,R/TP ,1x1 LDO, 1.2V , 150mA ,; ,IC,LDO Voltage Regulator		
6	U402	IC	EUSY0355701	PLP1010-4 ,4 PIN,R/TP ,150mA 2.8V Single LDO ,; ,IC,Voltage Regulator		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	U403	IC	EUSY0353801	PLP1010-4 ,4 PIN,R/TP ,1x1 LDO, 3.3V , 150mA ,; IC,LDO Voltage Regulator		
6	U404	IC	EUSY0238305	QFN ,20 PIN,R/TP ,4Ch+2LDO,3X4		
6	U500	RF MODULE,HANDSET	SMRH0004501	MHz, MHz,Dual band for EU ,ASM+PAM		
6	U501	IC	EUSY0280101	LFCSP-32 ,32 PIN,R/TP ,GSM QUAD BAND TRANSCEIVER, Othello G.		
6	VA303	VARISTOR	SEVY0004101	5.6 V , ,SMD ,360pF, 1005		
6	VA304	VARISTOR	SEVY0004101	5.6 V , ,SMD ,360pF, 1005		
6	VA305	VARISTOR	SEVY0004101	5.6 V , ,SMD ,360pF, 1005		
6	X100	X-TAL	EXXY0004602	.032768 MHz,20 PPM,12.5 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,		
6	X500	X-TAL	EXXY0025201	26 MHz,10 PPM,11 pF,60 ohm,SMD ,3.2*2.5*0.75 ,exclusive use at ADI RFIC ,; , ,10PPM , , , ,SMD ,P/TP		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0119601			
6	C300	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , , [empty] ,[empty] , [empty] , [empty] , [empty] , [empty] ,0.8 mm		
6	C328	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	L300	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L302	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L303	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	LD400	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD401	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD402	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD403	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD404	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD405	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD406	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD407	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	MIC300	MICROPHONE	SUMY0010609	UNIT , -42 dB,3.76*2.95*1.1 ,mems smd mic ,; , , ,OMNI ,[empty] , , [empty]		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R204	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R210	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R217	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R307	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R310	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R408	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R409	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R410	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R412	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R413	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R414	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R415	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	SPFY	PCB,MAIN	SPFY0192301	FR-4 ,0.8 mm,BUILD-UP 6 , , , , , , , , , ,		
6	VA200	VARISTOR	SEVY0000701	14 V , ,SMD ,120pF, 1005		
6	VA201	VARISTOR	SEVY0000701	14 V , ,SMD ,120pF, 1005		
6	VA300	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA301	VARISTOR	SEVY0004101	5.6 V , ,SMD ,360pF, 1005		
6	VA302	VARISTOR	SEVY0004101	5.6 V , ,SMD ,360pF, 1005		
6	VA400	VARISTOR	SEVY0004101	5.6 V , ,SMD ,360pF, 1005		
6	VA401	VARISTOR	SEVY0004101	5.6 V , ,SMD ,360pF, 1005		

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003719	; ,RMS 20mW(0.56V,RMS) ,16Ohm+/-2.4Ohm 1KHZ ,116dB+/-3dB 1KHZ,3mW ,116dB 1KHZ ,96dB 100HZ ,[empty] ,BLACK ,18P MMI CONNECTOR , ,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0024901	100-240V ,5060 Hz,5.1 V,7 A,CB/GOST ,AC-DC ADAPTOR ,; ,100Vac~350Vac ,5.1V (+0.15, -0.2) ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
대치		ADAPTOR,AC-DC	SSAD0024902	100-240V ,5060 Hz,5.1 V,7 A,CB/GOST ,AC-DC ADAPTOR ,; ,100Vac~350Vac ,5.1V (+0.15, -0.2) ,700mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		